



ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 51

[\[EPA-R09-OAR-2012-0904, FRL-9763-2\]](#)

Partial Approval and Disapproval of Air Quality Implementation Plans; Arizona; Regional Haze and Visibility Impacts of Transport, Ozone and Fine Particulates

AGENCY: Environmental Protection Agency (EPA)

ACTION: Proposed rule.

SUMMARY EPA is proposing to approve in part and disapprove in part a revision of Arizona's State Implementation Plan (SIP) to implement the regional haze program for the first planning period through July 31, 2018. This proposed action includes all portions of the SIP except for three electric generating stations that were addressed in a final rule published in the Federal Register on December 5, 2012. Today, EPA is taking action on Arizona's Best Available Retrofit Technology (BART) control analysis and determinations, Reasonable Progress Goals (RPGs) for the State's 12 Class I areas, Long-term Strategy (LTS), and other elements of the State's regional haze plan. If EPA takes final action to disapprove any portion of the SIP, EPA will work with the State to develop plan revisions to address the disapproved provisions. Regional haze is caused by emissions of air pollutants from numerous sources located over a broad geographic area. The Clean Air Act (CAA) requires states to adopt and submit to EPA SIPs that assure reasonable progress toward the national goal of achieving natural visibility conditions in 156 national parks and wilderness areas designated as Class I areas.

DATES: Written comments must be received by the designated contact at the address below on or before **[Insert date 45 days from date of publication in the Federal Register]**.

ADDRESSES: See the General Information section for further instructions on where and how to learn more about this proposed rule, and how to submit comments.

FOR FURTHER INFORMATION CONTACT: Gregory Nudd, U.S. EPA, Region 9, Planning Office, Air Division, Air-2, 75 Hawthorne Street, San Francisco, CA 94105. Gregory Nudd can be reached at telephone number (415) 947-4107 and via electronic mail at r9azreg haze@epa.gov.

SUPPLEMENTARY INFORMATION

Definitions

For the purpose of this document, we are giving meaning to certain words or initials as follows:

- 1) The words or initials *Act* or *CAA* mean or refer to the Clean Air Act, unless the context indicates otherwise.
- 2) The initials *ADEQ* mean or refer to the Arizona Department of Environmental Quality.
- 3) The words *Arizona* and *State* mean the State of Arizona.
- 4) The initials *ARHP* mean or refer to the Arizona Regional Haze Plan submitted by the State of Arizona on February 28, 2011.
- 5) The initials *BART* mean or refer to Best Available Retrofit Technology.
- 6) The term *Class I area* refers to a mandatory Class I Federal area.
- 7) The initials *CBI* mean or refer to Confidential Business Information.
- 8) The words *EPA*, *we*, *us* or *our* mean or refer to the United States Environmental Protection Agency.
- 9) The initials *FGD* mean or refer to flue gas desulfurization.
- 10) The initials *FIP* mean or refer to Federal Implementation Plan.

- 11) The initials *FLMs* mean or refer to Federal Land Managers.
- 12) The initials *IMPROVE* mean or refer to Interagency Monitoring of Protected Visual Environments monitoring network.
- 13) The initials *LTS* mean or refer to Long-term Strategy.
- 14) The initials *NAAQS* mean or refer to National Ambient Air Quality Standards.
- 15) The initials *NH₃* mean or refer to ammonia.
- 16) The initials *NO_x* mean or refer to nitrogen oxides.
- 17) The initials *NM* mean or refer to National Monument.
- 18) The initials *NP* mean or refer to National Park.
- 19) The initials *OC* mean or refer to organic carbon.
- 20) The initials *PM* mean or refer to particulate matter.
- 21) The initials *PM_{2.5}* mean or refer to fine particulate matter with an aerodynamic diameter of less than 2.5 micrometers.
- 22) The initials *PM₁₀* mean or refer to particulate matter with an aerodynamic diameter of less than 10 micrometers (coarse particulate matter).
- 23) The initials *ppm* mean or refer to parts per million.
- 24) The initials *PSD* mean or refer to of Significant Deterioration.
- 25) The initials *PTE* mean or refer to Potential to Emit.
- 26) The initials *RAVI* mean or refer to Reasonably Attributable Visibility Impairment.
- 27) The initials *RHR* mean or refer to the Regional Haze Rule, originally promulgated in 1999 and codified at 40 CFR 51.301-309.
- 28) The initials *RMC* mean or refer to Regional Modeling Center.
- 29) The initials *RP* mean or refer to Reasonable Progress.
- 30) The initials *RPG* or *RPGs* mean or refer to Reasonable Progress Goal(s).

- 31) The initials *RPOs* mean or refer to regional planning organizations.
- 32) The initials *SIP* mean or refer to State Implementation Plan.
- 33) The initials *SO₂* mean or refer to sulfur dioxide.
- 34) The initials *SRP* mean or refer to Salt River Project Agricultural Improvement and Power District.
- 35) The initials *SSJF* mean or refer to the Stationary Sources Joint Forum of the Western Regional Air Partnership.
- 36) The initials *tpy* mean tons per year.
- 37) The initials *TSD* mean or refer to Technical Support Document.
- 38) The initials *VOC* mean or refer to volatile organic compounds.
- 39) The initials *WA* mean or refer to Wilderness Area.
- 40) The initials *WEP* mean or refer to Weighted Emissions Potential.
- 41) The initials *WRAP* mean or refer to the Western Regional Air Partnership.

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I. General Information

A. Docket

The proposed action relies on documents, information and data that are listed in the index on <http://www.regulations.gov> under docket number EPA-R09-OAR-2012-0904. Although listed in the index, some information is not publicly available (e.g., Confidential Business Information (CBI)). Certain other material, such as copyrighted material, is publicly available only in hard copy form. Publicly available docket materials are available either electronically at <http://www.regulations.gov> or in hard copy at the Planning Office of the Air Division, AIR-2,

EPA Region 9, 75 Hawthorne Street, San Francisco, CA 94105. EPA requests that you contact the individual listed in the FOR FURTHER INFORMATION CONTACT section to view the hard copy of the docket. You may view the hard copy of the docket Monday through Friday, 9-5:00 PST, excluding Federal holidays.

B. Instructions for Submitting Comments

Written comments must be received at the address below on or before [**Insert date 45 days from date of publication**]. Submit your comments, identified by Docket ID No. EPA-R09-OAR-2012-0904, by one of the following methods:

- Federal Rulemaking portal: <http://www.regulations.gov>. Follow the on-line instructions for submitting comments.
- E-mail: r9azreg haze@epa.gov
- Fax: 415-947-3579 (Attention: Gregory Nudd)
- Mail, Hand Delivery or Courier: Gregory Nudd, EPA Region 9, Air Division (AIR-2), 75 Hawthorne Street, San Francisco, California 94105. Hand and courier deliveries are only accepted Monday through Friday, 8:30 a.m. to 4:30 p.m., excluding Federal holidays. Special arrangements should be made for deliveries of boxed information.

EPA's policy is to include all comments received in the public docket without change. We may make comments available online at <http://www.regulations.gov>, including any personal information provided, unless the comment includes information claimed to be CBI or other information for which disclosure is restricted by statute. Do not submit information that you consider to be CBI or that is otherwise protected through <http://www.regulations.gov> or e-mail. The <http://www.regulations.gov> web site is an “anonymous access” system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA, without going through

<http://www.regulations.gov>, we will include your e-mail address as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should not include special characters or any form of encryption, and be free of any defects or viruses.

C. Submitting Confidential Business Information

Do not submit CBI to EPA through <http://www.regulations.gov> or e-mail. Clearly mark the part or all of the information that you claim as CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, you must submit a copy of the comment that does not contain the information claimed as CBI for inclusion in the public docket. We will not disclose information so marked except in accordance with procedures set forth in 40 CFR part 2.

D. Tips for Preparing Comments

When submitting comments, remember to:

- Identify the rulemaking by docket number and other identifying information (e.g., subject heading, Federal Register date and page number).
- Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.
- Describe any assumptions and provide any technical information and/or data that you used.

- If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.
- Provide specific examples to illustrate your concerns, and suggest alternatives.
- Explain your views as clearly as possible, avoiding the use of profanity or personal threats.
- Make sure to submit your comments by the identified comment period deadline.

II. Overview of Proposed Actions

A. Regional Haze

EPA is proposing to approve in part and disapprove in part the remaining portion of Arizona's Regional Haze Plan (ARHP)¹ submitted to EPA Region 9 on February 28, 2011, to meet the requirements of Section 308 of the Regional Haze Rule (RHR). We propose to take action on Arizona's Best Available Retrofit Technology (BART) control analysis and determinations, Reasonable Progress Goals (RPG) for each of the 12 Class I areas, and Long-term Strategy (LTS). We are also proposing to take action on the requirements that support these major components of the plan, namely, the identification of Class I Areas impaired by Arizona's emissions, estimated visibility conditions, emission inventories, and the State's monitoring strategy. Today's proposal follows our recent final action on three BART sources in Arizona² and completes our review of the State's plan. EPA takes very seriously a decision to propose disapproval of provisions in Arizona's plan, as we believe that it is preferable that all emission control requirements needed to protect visibility be implemented through the Arizona State Implementation Plan (SIP). EPA must be able to find that the state plan is consistent with the requirements of the Clean Air Act (CAA). Further, EPA's oversight role requires that we assure

¹ "Arizona State Implementation Plan, Regional Haze Under Section 308 Of the Federal Regional Haze Rule," February 28, 2011.

² See 77 FR 72512, December 5, 2012..

fair implementation of CAA requirements by states across the country, even while acknowledging that individual decisions from source to source or state to state may not have identical outcomes. EPA believes this partial approval and partial disapproval is consistent with the CAA at this time, while full approval of the SIP would be inconsistent with the CAA. We look forward to working with ADEQ to address the issues identified in our action. Our proposed actions are summarized as follows:

Supporting Elements: EPA is proposing to approve Arizona's identification of Class I areas that may experience visibility impairment due to emissions from sources within the State; Arizona's estimated visibility conditions for baseline, 2018 and 2064; Arizona's uniform rate of progress for each Class I area; Arizona's emission inventories for 2002 and 2018; and Arizona's identification of the sources of visibility impairment. Because the submittal does not include the most recently available emission inventory, as required under the RHR, we are proposing to disapprove the ARHP with respect to this requirement.

BART-Eligible: EPA is proposing to approve Arizona's determination that specific units at the following six sources are eligible for BART: ASARCO Hayden Smelter (Hayden smelter), Freeport-McMoRan Inc. Miami Smelter (Miami smelter), Chemical Lime (a subsidiary of Lhoist) Nelson Plant (Nelson Lime Plant) Kilns 1 and 2, Arizona Public Service West Phoenix Power Plant (West Phoenix Power Plant) Combined Cycle Units 1 through 3, CalPortland Rillito Cement Plant (Rillito Plant) Kiln 4, and Catalyst Pulp Mill in Snowflake (Catalyst Paper) Power Boiler 2.³ We propose to disapprove Arizona's determination that Tucson Electric Power Sundt Generating Station (Sundt) Unit 4 is not eligible for BART. Finally, we propose to approve the State's determination that no other units in the State are BART-eligible. In particular, we propose

³ We have already approved ADEQ's determination that Arizona Electric Power Cooperative (AEP) Apache Generating Station (Apache) Units 1-3, Arizona Public Service Cholla Power Plant (Cholla) Units 2-4, and Salt River Project Coronado Generating Station (Coronado) 1-2 are BART-eligible. See 77 FR 72512.

to approve the State's finding that Cholla Power Plant Unit 1 and Sundt Unit I3 are not BART-eligible.

BART-Exempt: EPA is proposing to approve Arizona's decision to set 0.5 dv as the threshold for determining whether sources are subject to BART, but we are seeking comment on whether this threshold is reasonable. We propose to approve Arizona's determination that two eligible sources are exempt from BART based on this threshold. These BART-exempt sources are West Phoenix Power Plant and Rillito Plant. We propose to disapprove Arizona's determination that Nelson Lime Plant is exempt from BART, but we are seeking comment on whether this determination was reasonable and should be approved.

BART-Subject: EPA is proposing to approve Arizona's determination that three eligible sources are subject to BART. These sources are Hayden smelter, Miami smelter, and Catalyst Paper.

BART Determination: EPA is proposing to approve Arizona's BART determinations for NO_x at Hayden smelter, and for PM₁₀ at Miami smelter. We propose to disapprove Arizona's conclusion that a BART determination is not required for PM₁₀ at the Hayden smelter and for NO_x at the Miami smelter. We are proposing alternatively to approve or disapprove the State's BART determination for SO₂ at the Hayden and Miami smelters depending on a more detailed BART demonstration from the State. We propose not to act on the State's BART determination for Catalyst Paper because this facility is no longer in operation. Further, we propose to disapprove the compliance schedules and requirements for equipment maintenance and operation related to BART controls at the Hayden smelter and the Miami smelter because these were not included in the State's SIP submittal.

Reasonable Progress Goals: EPA is proposing to disapprove Arizona's RPGs for 2018 on the 20 percent least impaired ("best") and 20 percent most impaired ("worst") days at all of

the State's Class I areas. We propose to find that the State has not demonstrated that these goals constitute reasonable progress by 2018 toward the goal of natural conditions by 2064. For both the best and worst days, we expect actual visibility conditions in 2018 to be better than predicted by the State as a result of the economic recession and EPA-required controls.

Long-term Strategy: EPA is proposing to approve Arizona's interstate consultation process, the technical basis for its apportionment of emission reductions, and the identification of all anthropogenic sources of visibility impairment. Regarding the seven mandatory factors a state must consider for the LTS, we propose to find that Arizona considered emissions reductions due to ongoing air pollution control programs, measures to mitigate the impacts of construction activities, source retirement and replacement schedules, smoke management techniques, and the anticipated net effect on visibility due to projected changes in emissions through 2018. However, we propose to find that the Arizona SIP does not include all measures needed to achieve the State's apportionment of emission reduction obligations with respect to out-of-state Class I areas. We also propose to find that Arizona did not adequately consider emissions limitations and schedules of compliance to achieve the RPGs or the enforceability of emissions limits and control measures.

B. Interstate Transport of Pollutants that affect Visibility

When EPA promulgates a new or revised National Ambient Air Quality Standard (NAAQS), states must submit SIP revisions that, among other things, contain adequate provisions to prohibit the emission of any air pollutant in amounts that will interfere with SIP measures required of other states to protect visibility. CAA section 110(a)(2)(D)(i)(II). In 1997, EPA promulgated a revised NAAQS for 8-hour ozone and a new annual and 24-hour NAAQS for particulate matter less than 2.5 microns (PM_{2.5}), and in 2006, EPA revised the 24-hour PM_{2.5}

NAAQS. Each of these actions triggered the requirement for states to address the interstate transport visibility requirement of section 110(a)(2)(D)(i)(II).

In 2007 and 2009, Arizona submitted SIP revisions for the 1997 ozone and PM_{2.5}, and 2006 PM_{2.5} NAAQS, respectively, each of which indicated that it would be appropriate to assess Arizona's interference with other states' measures to protect visibility in conjunction with the state's regional haze SIP. Due to the sequence of Arizona's regional haze submissions, we interpret Arizona's 2007 and 2009 Transport SIPs to mean that Arizona intended its Regional Haze Plan to address the interstate visibility requirement of section 110(a)(2)(D)(i) for the 1997 8-hour ozone, 1997 PM_{2.5} NAAQS, and 2006 PM_{2.5} NAAQS.

As explained elsewhere in this notice, EPA is proposing to disapprove several elements of Arizona's Regional Haze Plan. In a prior final rule, EPA disapproved certain aspects of Arizona's BART determinations for three sources.⁴ Accordingly, Arizona's SIP lacks enforceable emissions limitations for certain air pollutants necessary to achieve RPGs for all Class I areas within, or affected by emissions from, Arizona. As such, we are proposing to find that Arizona's 2007 and 2009 Transport SIPs and ARHP do not contain adequate provisions to meet the "good neighbor" provisions of section 110(a)(2)(D)(i)(II) with respect to visibility for the 1997 8-hour ozone, 1997 PM_{2.5}, and 2006 PM_{2.5} NAAQS, nor a demonstration that the existing Arizona SIP already includes measures sufficient to meet the interstate transport visibility requirement.

III. Regional Haze Program and Interstate Transport Background

A. Description of Regional Haze

⁴ 77 FR 72512.

Regional haze is visibility impairment that is produced by a multitude of sources and activities that are located across a broad geographic area and emit fine particulates (e.g., sulfates, nitrates, organic carbon (OC), elemental carbon (EC), and soil dust), and their precursors (e.g., sulfur dioxide, nitrogen oxides, and in some cases, ammonia (NH₃) and volatile organic compounds (VOC)). Fine particle precursors react in the atmosphere to form PM_{2.5}, which impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that one can see. PM_{2.5} can also cause serious health effects and mortality in humans and contributes to environmental effects such as acid deposition and eutrophication.

Data from the existing visibility monitoring network, the “Interagency Monitoring of Protected Visual Environments” (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all the time at most national parks (NPs) and wilderness areas (WAs). The average visual range⁵ in many Class I areas (i.e., NPs and memorial parks, WAs, and international parks meeting certain size criteria) in the western United States is 100-150 kilometers, or about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In most of the eastern Class I areas of the United States, the average visual range is less than 30 kilometers, or about one-fifth of the visual range that would exist under estimated natural conditions.⁶

B. History of Regional Haze Regulations

In section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation’s national parks and wilderness areas. This section of the CAA establishes as a national goal the “prevention of any future, and the remedying of any existing,

⁵ Visual range is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky.

⁶ 64 FR 35715 (July 1, 1999).

impairment of visibility in mandatory Class I Federal areas⁷ which impairment results from manmade air pollution.” EPA promulgated regulations on December 2, 1980, to address visibility impairment in Class I areas that is “reasonably attributable” to a single source or small group of sources, i.e., “reasonably attributable visibility impairment.”⁸ These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

As part of the 1990 Amendments to the CAA, Congress added section 169B to focus attention on regional haze issues. EPA promulgated a rule to address regional haze on July 1, 1999.⁹ The primary regulatory requirements that address regional haze are found at 40 CFR 51.308 and 51.309 and are summarized below. Under 40 CFR 51.308(b), all states, the District of Columbia and the Virgin Islands are required to submit an initial SIP addressing regional haze visibility impairment no later than December 17, 2007.¹⁰

C. Roles of Agencies in addressing Regional Haze

Successful implementation of the regional haze program will require long-term regional coordination among states, tribal governments and various federal agencies. As noted above, pollution affecting the air quality in Class I areas can be transported over long distances, even hundreds of kilometers. Therefore, to effectively address the problem of visibility impairment in

⁷ Areas designated as mandatory Class I Federal areas consist of national parks exceeding 6000 acres, wilderness areas and national memorial parks exceeding 5000 acres, and all international parks that were in existence on August 7, 1977. 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to “mandatory Class I Federal areas.” Each mandatory Class I Federal area is the responsibility of a “Federal Land Manager.” 42 U.S.C. 7602(i). When we use the term “Class I area” in this action, we mean a “mandatory Class I Federal area.”

⁸ 45 FR 80084 (December 2, 1980).

⁹ 64 FR 35714 (July 1, 1999) codified at 40 CFR part 51, subpart P (Regional Haze Rule).

¹⁰ EPA’s regional haze regulations require subsequent updates to the regional haze SIPs. 40 CFR 51.308(g) – (i).

Class I areas, states, or the EPA when implementing a FIP, need to develop strategies in coordination with one another, taking into account the effect of emissions from one jurisdiction on the air quality in another.

Because the pollutants that lead to regional haze can originate from sources located across broad geographic areas, EPA has encouraged the states and tribes across the United States to address visibility impairment from a regional perspective. Five regional planning organizations (RPOs) were developed to address regional haze and related issues. The RPOs first evaluated technical information to better understand how their states and tribes impact Class I areas across the country, and then pursued the development of regional strategies to reduce emissions of particulate matter and other pollutants leading to regional haze.

The Western Regional Air Partnership (WRAP) RPO is a collaborative effort of state governments, tribal governments, and various federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility and other air quality issues in the western United States. WRAP member State governments include: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. Tribal members include Campo Band of Kumeyaay Indians, Confederated Salish and Kootenai Tribes, Cortina Indian Rancheria, Hopi Tribe, Hualapai Nation of the Grand Canyon, Native Village of Shungnak, Nez Perce Tribe, Northern Cheyenne Tribe, Pueblo of Acoma, Pueblo of San Felipe, and Shoshone-Bannock Tribes of Fort Hall.

D. Interstate Transport of Pollutants

EPA promulgated new NAAQS for 8-hour ozone and fine particulate matter (PM_{2.5})¹¹ on July 18, 1997, and revised the 24-hour PM_{2.5} NAAQS to a more protective level¹² on September 21, 2006. Section 110(a)(1) requires states to submit a plan to address certain requirements for a new or revised NAAQS within three years after promulgation of such standards, or within such shorter time as EPA may prescribe. Section 110(a)(2) of the CAA lists the elements that such new plan submissions must address, as applicable, including section 110(a)(2)(D)(i), which pertains to the interstate transport of air pollutants.

EPA issued on April 25, 2005, a “Finding of Failure to Submit SIPs for Interstate Transport for the [1997] 8-hour Ozone and PM_{2.5} NAAQS.”¹³ This included a finding that Arizona and other states had failed to submit SIPs to address interstate transport of emissions affecting visibility and started a two-year clock for EPA to promulgate a FIP, unless the state made a submission to meet the requirements of section 110(a)(2)(D)(i) and EPA approved such submission.¹⁴

EPA issued guidance on August 15, 2006, entitled “Guidance for State Implementation Plan (SIP) Submissions to Meet Current Outstanding Obligations Under Section 110(a)(2)(D)(i) for the [1997] 8-Hour Ozone and PM_{2.5} National Ambient Air Quality Standards” (“2006 Guidance”). As identified in the 2006 Guidance, the “good neighbor” provisions in section 110(a)(2)(D)(i) of the CAA require each state to have a SIP that prohibits emissions that adversely affect other states in the ways contemplated in the statute. Section 110(a)(2)(D)(i) contains four distinct requirements (or “prongs”) related to the impacts of interstate transport.

¹¹ The 8-hour averaging period replaced the previous 1-hour averaging period, and the level of the NAAQS was changed from 0.12 parts per million (ppm) to 0.08 ppm (62 FR 38856). The annual PM_{2.5} standard was set at 15 micrograms per cubic meter (µg/m³), based on the 3-year average of annual arithmetic mean PM_{2.5} concentrations from single or multiple community-oriented monitors and the 24-hour PM_{2.5} standard was set at 65 µg/m³, based on the 3-year average of the 98th percentile of 24-hour PM_{2.5} concentrations at each population-oriented monitor within an area (62 FR 38652).

¹² The final rule on the 24-hour NAAQS for PM_{2.5} published on October 17, 2006 revised the standard from 65 µg/m³ to 35 µg/m³ (71 FR 61144).

¹³ 70 FR 21147.

¹⁴ Id.

The SIP must prevent sources in the state from emitting pollutants in amounts that will: (1) contribute significantly to nonattainment of the NAAQS in other states; (2) interfere with maintenance of the NAAQS in other states; (3) interfere with SIP measures required of other states to prevent significant deterioration of air quality; or, (4) interfere with SIP measures required of other states to protect visibility.¹⁵

With respect to the fourth prong regarding interference with other states' measures to protect visibility, the 2006 Guidance recommended that states make a submission indicating that it was premature, at that time, to determine whether there would be any interference with measures in the applicable SIP for another state designed to "protect visibility" until the submission and approval of regional haze SIPs. Regional haze SIPs were required to be submitted by December 17, 2007.¹⁶ EPA reiterated this connection between the regional haze and the visibility prong of section 110(a)(2)(D)(i) for the 2006 PM_{2.5} NAAQS in guidance entitled "Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2006 24-hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS)" ("2009 Guidance"). For instance, the 2009 Guidance noted that states are obliged to submit SIP measures to address regional haze, including a long-term strategy to address Class I area visibility impairment.¹⁷ A state's long-term strategy must address how it will ensure that the emission control assumptions that other states relied on in developing their RPGs are met.

The regional haze program, as reflected in the RHR, recognizes the importance of addressing the long-range transport of pollutants to protect visibility and encourages states to work together to develop plans to address haze. The regulations explicitly require each state to

¹⁵ EPA previously took final action on SIP revisions from Arizona to address section 110(a)(2)(D)(i) requirements for the 1997 8-hour ozone and 1997 PM_{2.5} NAAQS, but deferred action on the fourth requirement regarding visibility. *See* 72 FR 42629 at 42632-42633 (July 31, 2007). Also, EPA recently finalized action on the first three requirements of section 110(a)(2)(D)(i) for the 2006 PM_{2.5} NAAQS. *See* 77 FR 66398.

¹⁶ 74 FR 2392, January 15, 2009.

¹⁷ 2009 Guidance at page 6.

address its “share” of the emission reductions needed to meet the RPGs for neighboring Class I areas. Working together through a regional planning process, states are required to address an agreed upon share of their contribution to visibility impairment in the Class I areas of their neighbors.¹⁸ Given these requirements, we anticipated that regional haze SIPs would contain measures that would achieve these emissions reductions, and that these measures would meet the visibility requirements of section 110(a)(2)(D)(i).

As a result of the regional planning efforts in the west, all states in the WRAP region contributed information to a Technical Support System (TSS) which provides an analysis of the causes of haze, and the levels of contribution from all sources within each state to the visibility degradation of each Class I area. The WRAP states consulted in the development of RPGs, using the products of this technical consultation process to co-develop their RPGs for the western Class I areas. The modeling done by the WRAP relied on assumptions regarding emissions over the relevant planning period and embedded in these assumptions were anticipated emissions reductions in each of the states in the WRAP, including reductions from installation of BART at appropriate sources and other measures to be adopted as part of the state's long-term strategy for addressing regional haze. The RPGs in the draft and final regional haze SIPs that have now been prepared by states in the west accordingly are based, in part, on the emissions reductions from nearby states that were agreed on through the WRAP process.

ADEQ submitted on May 24, 2007, its “Revision to the Arizona State Implementation Plan Under Clean Air Act Section 110(a)(2)(D)(i) – Regional Transport” (“2007 Transport SIP”) to address the requirements of section 110(a)(2)(D)(i) for the 1997 8-hour ozone and 1997 PM_{2.5} NAAQS. EPA approved this submission with respect to the first three transport prongs, but deferred action on the fourth prong (i.e. interference with SIP measures required to protect

¹⁸ 40 CFR 51.308(d)(3)(ii).

visibility) until we received Arizona's final Regional Haze SIP.¹⁹ ADEQ submitted on October 14, 2009, its "Arizona State Implementation Plan Revision under Clean Air Act Section 110(a)(1) and (2); 2006 PM_{2.5} NAAQS, 1997 PM_{2.5} NAAQS, and 1997 8-hour Ozone NAAQS," which addressed the requirements of section 110(a)(2)(D)(i) with respect to the 2006 PM_{2.5} NAAQS in Section 2.4 and Appendix B of the submittal ("2009 Transport SIP"). As with the 2007 Transport SIP, EPA acted on the first three prongs, but deferred action on the fourth prong.²⁰

Both of these submittals refer to EPA's 2006 Guidance and state that Arizona agrees with the 2006 Guidance inasmuch as it would be appropriate to assess a state's interference with other states' measures to protect visibility in conjunction with the state's regional haze SIPs.²¹ For Arizona's regional haze program, the 2007 and 2009 Transport SIPs both indicate that Arizona submitted a regional haze SIP under 40 CFR 51.309 in December 2003 for the four Class I areas on the Colorado Plateau in Arizona and that the State would submit a SIP under 40 CFR 51.309(g) for the remaining eight Class I areas in Arizona.²² As described in prior sections of this notice, ADEQ ultimately submitted its final regional haze SIP on February 28, 2011 under 40 CFR 51.308.

We interpret Arizona's 2007 and 2009 Transport SIPs to mean that Arizona intended its Regional Haze Plan to address the interstate visibility requirement of section 110(a)(2)(D)(i) for the 1997 8-hour ozone, 1997 PM_{2.5} NAAQS, and 2006 PM_{2.5} NAAQS. Accordingly, our evaluation of Arizona's 2007 and 2009 Transport SIPs and whether they meet the CAA section 110(a)(2)(D)(i) visibility requirements relies on our evaluation of Arizona's 2011 Regional Haze

¹⁹ 72 FR 41629, July 31, 2007. In that notice, EPA noted that "the Arizona [2007 Transport SIP] concurs with EPA in concluding that is currently premature to determine whether or not SIPs for 8-hour ozone or PM_{2.5} contain adequate provisions to prohibit emissions that interfere with measures in other states' SIPs designed to address regional haze." 72 FR 41629 at 41632.

²⁰ 77 FR 66398 (November 5, 2012).

²¹ 2007 Transport SIP, p. 12, and 2009 Transport SIP, Appendix B, p. 11.

²² Id.

Plan. Specifically, we interpret the “good neighbor” provisions of section 110(a)(2)(D)(i) as requiring states to include in their SIPs either measures to prohibit emissions that would interfere with the RPGs required to be set to protect visibility in Class I areas in other states, or a demonstration that emissions from the state’s sources and activities will not have the prohibited impacts under the existing SIP.

IV. Requirements for Regional Haze Implementation Plans

A. Regional Haze Rule

The Regional Haze Rule (RHR) sets out specific requirements for states’ initial regional haze implementation plans.²³ In particular, each state’s plan must establish a long-term strategy that ensures reasonable progress toward achieving natural visibility conditions in each Class I area affected by the emissions from sources within the state. In addition, for each Class I area within the state’s boundaries, the plan must establish a reasonable progress goal (RPG) for the first planning period that ends on July 31, 2018. The long-term strategy must include enforceable emission limits and other measures as necessary to achieve the RPG. Regional haze plans must also give specific attention to certain stationary sources that were in existence on August 7, 1977, but were not in operation before August 7, 1962. These sources, where appropriate, are required to install BART controls to eliminate or reduce visibility impairment. Although such BART determinations can be a part of a reasonable progress strategy, BART is also an independent requirement that can be assessed separately from the other requirements of the RHR.

B. Determination of Baseline, Natural and Current Visibility Conditions

The RHR establishes the deciview (dv) as the principal metric for measuring visibility. This visibility metric expresses uniform changes in haziness in terms of common increments

²³ Pursuant to 40 CFR 51.301, “implementation plan” is defined as “any State Implementation Plan, Federal Implementation Plan, or Tribal Implementation Plan.” Therefore, although the requirements of the RHR are generally described in relation to SIPs, they are also relevant where EPA is promulgating a regional haze plan.

across the entire range of visibility conditions, from pristine to extremely hazy conditions. Visibility expressed in deciviews is determined by using air quality measurements to estimate light extinction and then transforming the value of light extinction to deciviews using a logarithmic function. The deciview is a more useful measure for tracking progress in improving visibility than light extinction because each deciview change is an equal incremental change in visibility as perceived by the human eye. Most people can detect a change in visibility at one deciview.²⁴

The deciview is used to express reasonable progress goals, define visibility conditions, and track changes in visibility. To track changes in visibility at each of the 156 Class I areas covered by the visibility program (40 CFR 81.401-437), and as part of the process for determining reasonable progress, states must calculate the degree of existing visibility impairment at each Class I area and periodically review progress midway through each ten-year implementation period. To do this, the RHR requires states to determine the degree of impairment (in deciviews) for the average of the 20 percent least impaired (“best”) and 20 percent most impaired (“worst”) visibility days over a specified time period at each of their Class I areas. In addition, states must develop an estimate of natural visibility conditions for the purpose of comparing progress toward the national goal. Natural visibility is determined by estimating the natural concentrations of pollutants that cause visibility impairment and then calculating total light extinction based on those estimates. EPA has provided guidance to states regarding how to calculate baseline, natural and current visibility conditions in documents titled, *EPA's Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule*, September 2003,²⁵ hereinafter referred to as "EPA's 2003 Natural Visibility Guidance", and

²⁴The preamble to the RHR provides additional details about the deciview. 64 FR 35714, 35725 (July 1, 1999).

²⁵ EPA-454/B-03-005 located at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_envcurhr_gd.pdf.

Guidance for Tracking Progress Under the Regional Haze Rule, September 2003,²⁶ hereinafter referred to as "EPA's 2003 Tracking Progress Guidance".

For the first regional haze SIPs that were due by December 17, 2007, "baseline visibility conditions" were the starting points for assessing "current" visibility impairment. Baseline visibility conditions represent the degree of visibility impairment for the 20 percent least impaired days and 20 percent most impaired days for each calendar year from 2000-2004. Using monitoring data for 2000 through 2004, states are required to calculate the average degree of visibility impairment for each Class I area, based on the average of annual values over the five-year period. The comparison of initial baseline visibility conditions to natural visibility conditions indicates the amount of improvement necessary to attain natural visibility, while the future comparison of baseline conditions to the then current conditions will indicate the amount of progress. In general, the 2000-2004 baseline period is considered the time from which improvement in visibility is measured.

C. Determination of Reasonable Progress Goals (RPGs)

The mechanism for ensuring continuing progress toward achieving the natural visibility goal is the submission of a series of regional haze SIPs that establish two RPGs (i.e., two distinct goals, one for the "best" and one for the "worst" days) for every Class I area for each ten-year implementation period. The RHR does not mandate specific milestones or rates of progress, but instead calls for states to establish goals that provide for "reasonable progress" toward achieving natural (i.e., "background") visibility conditions. In setting RPGs, states must provide for an improvement in visibility for the most impaired days over the ten-year period of the SIP, and ensure no degradation in visibility for the least impaired days over the same period.

²⁶ EPA-454/B-03-004 September 2003 located at http://www.epa.gov/ttncaaal/tl/memoranda/rh_tpurhr_gd.pdf.

States have significant discretion in establishing RPGs, but are required to consider the following factors established in section 169A of the CAA and in EPA's RHR at 40 CFR 51.308(d)(1)(i)(A): (1) the costs of compliance; (2) the time necessary for compliance; (3) the energy and non-air quality environmental impacts of compliance; and (4) the remaining useful life of any potentially affected sources. States must demonstrate in their SIPs how these factors are considered when selecting the RPGs for the best and worst days for each applicable Class I area. States have considerable flexibility in how they take these factors into consideration, as noted in EPA's *Guidance for Setting Reasonable Progress Goals under the Regional Haze Program*, July 1, 2007, memorandum from William L. Wehrum, Acting Assistant Administrator for Air and Radiation, to EPA Regional Administrators, EPA Regions 1-10 (pp. 4-2, 5-1) ("EPA's Reasonable Progress Guidance"). In setting the RPGs, states must also consider the rate of progress needed to reach natural visibility conditions by 2064 (referred to as the "uniform rate of progress" (URP) or the "glide path") and the emission reduction measures needed to achieve that rate of progress over the ten-year period of the SIP. Uniform progress towards achievement of natural conditions by the year 2064 represents a rate of progress that states are to use for analytical comparison to the amount of progress they expect to achieve. In setting RPGs, each state with one or more Class I areas ("Class I state") must also consult with potentially "contributing states," i.e., other nearby states with emission sources that may be affecting visibility impairment at the Class I state's areas.²⁷

D. Best Available Retrofit Technology (BART)

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs

²⁷ 40 CFR 51.308(d)(1)(iv).

to contain such measures as may be necessary to make reasonable progress towards the natural visibility goal, including a requirement that certain categories of existing major stationary sources²⁸ built between 1962 and 1977 procure, install, and operate the “Best Available Retrofit Technology” as determined by the state. Under the RHR, states are directed to conduct BART determinations for such “BART-eligible” sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or other alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART.

EPA published the Guidelines for BART Determinations under the Regional Haze Rule at Appendix Y to 40 CFR part 51 (hereinafter referred to as the “BART Guidelines”) on July 6, 2005. The Guidelines assist states in determining which of their sources should be subject to the BART requirements and in determining appropriate emission limits for each such “subject-to-BART” source. In making BART determinations for fossil fuel-fired electric generating plants with a total generating capacity in excess of 750 megawatts, states must use the approach set forth in the BART Guidelines. States are encouraged, but not required, to follow the BART Guidelines in making BART determinations for other types of sources. States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility impairing pollutants are SO₂, NO_x and PM. EPA has indicated that states should use their best judgment in determining whether VOC or NH₃ compounds impair visibility in Class I areas.

Under the BART Guidelines, states may select an exemption threshold value for their BART modeling, below which a BART-eligible source would not be expected to cause or

²⁸ The set of “major stationary sources” potentially subject to BART is listed in CAA section 169A(g)(7).

contribute to visibility impairment in any Class I area. The state must document this exemption threshold value in the SIP and must state the basis for its selection of that value. Any source with emissions that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. In setting their exemption threshold values, states should consider the number of emission sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts. An exemption threshold set by the state should not be higher than 0.5 deciview.

In their SIPs, states must identify potential BART sources, described in the RHR as "BART-eligible sources," and document their BART control determination analyses. In making BART determinations, section 169A(g)(2) of the CAA requires that states consider the following factors: (1) The costs of compliance; (2) the energy and non-air quality environmental impacts of compliance; (3) any existing pollution control technology in use at the source; (4) the remaining useful life of the source; and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. States are free to determine the weight and significance assigned to each factor, but must consider all five factors and provide a reasoned explanation for adopting the technology selected as BART, based on the five factors.

A regional haze SIP must include source-specific BART emission limits and compliance schedules for each source subject to BART, unless the SIP includes an alternative program that provides greater reasonable progress towards improving visibility than BART and meets the other requirements of 40 CFR 51.308(e)(2). Once a state has made its BART determination, the BART controls must be installed and in operation as expeditiously as practicable, but no later than five years after the date EPA approves the regional haze SIP.²⁹ The Regional Haze SIP must also contain a requirement for each BART source to maintain the relevant control equipment, as

²⁹ CAA section 169(g)(4); 40 CFR 51.308(e)(1)(iv).

well as procedures to ensure control equipment is properly operated and maintained.³⁰ In addition to what is required by the RHR, general SIP requirements mandate that the SIP must also include all regulatory requirements related to monitoring, recordkeeping and reporting for the BART emissions limitations.³¹

E. Long-Term Strategy (LTS)

Consistent with the requirement in section 169A(b) of the CAA that states include in their regional haze SIP a 10-15 year strategy for making reasonable progress, section 51.308(d)(3) of the RHR requires that states include a long-term strategy in their regional haze SIPs. The LTS is the compilation of all control measures a state will use during the implementation period of the specific SIP submittal to meet applicable RPGs. The LTS must include “enforceable emissions limitations, compliance schedules, and other measures needed to achieve the reasonable progress goals” for all Class I areas within and affected by emissions from the state.³²

When a state's emissions are reasonably anticipated to cause or contribute to visibility impairment in a Class I area located in another state, the RHR requires the impacted state to coordinate with contributing states to develop coordinated emissions management strategies.³³ In such cases, the contributing state must demonstrate that it has included in its SIP, all measures necessary to obtain its share of the emission reductions needed to meet the RPGs for the Class I area. The RPOs have provided forums for significant interstate consultation, but additional consultation between states may be required to sufficiently address interstate visibility issues (e.g., where two states belong to different RPOs).

³⁰ 40 CFR 51.308(e)(1)(v). *See also* CAA section 302(k) (defining “emission limitation” as “a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, *including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction . . .*”) (emphasis added).

³¹ *See* CAA section 110(a)(2) (requirements for SIPs).

³² 40 CFR 51.308(d)(3).

³³ 40 CFR 51.308(d)(3)(i).

States should consider all types of anthropogenic sources of visibility impairment in developing their LTS, including stationary, minor, mobile, and area sources. At a minimum, states must describe how each of the seven factors listed below are taken into account in developing their LTS: (1) emission reductions due to ongoing air pollution control programs, including measures to address Reasonably Attributable Visibility Impairment (RAVI); (2) measures to mitigate the impacts of construction activities; (3) emissions limitations and schedules for compliance to achieve the RPG; (4) source retirement and replacement schedules; (5) smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the state for these purposes; (6) enforceability of emissions limitations and control measures; and (7) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS.³⁴

F. Coordination of Regional Haze and RAVI

As part of the RHR, EPA revised 40 CFR 51.306(c) regarding the long-term strategy for RAVI to require that the RAVI plan must provide for a periodic review and SIP revision not less frequently than every three years until the date of submission of the state's first plan addressing regional haze visibility impairment, which was due December 17, 2007, in accordance with 40 CFR 51.308(b) and (c). On or before this date, the state must revise its plan to provide for review and revision of a coordinated LTS for addressing RAVI and regional haze, and the state must submit the first such coordinated LTS with its first regional haze SIP. Future coordinated LTSs, and periodic progress reports evaluating progress towards RPGs, must be submitted consistent with the schedule for SIP submission and periodic progress reports set forth in 40 CFR 51.308(f) and 51.308(g), respectively. The periodic review of a state's LTS must report on both regional haze and RAVI impairment and must be submitted to EPA as a SIP revision.

³⁴ 40 CFR 51.308(d)(3)(v).

G. Monitoring Strategy

Section 51.308(d)(4) of the RHR requires a monitoring strategy for measuring, characterizing, and reporting on regional haze visibility impairment that is representative of all mandatory Class I areas within the state. The strategy must be coordinated with the monitoring strategy required in 40 CFR 51.305 for RAVI. Compliance with this requirement may be met through “participation” in the Interagency Monitoring of Protected Visual Environments (IMPROVE) network, i.e., review and use of monitoring data from the network. The monitoring strategy is due with the first regional haze SIP, and it must be reviewed every five years. The monitoring strategy must also provide for additional monitoring sites if the IMPROVE network is not sufficient to determine whether RPGs will be met. The SIP must also provide for the following:

- Procedures for using monitoring data and other information in a state with mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas both within and outside the state;
- Procedures for using monitoring data and other information in a state with no mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas in other states;
- Reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state, and where possible, in electronic format;
- Developing a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. A state must also make a commitment to update the inventory periodically; and

- Other elements, including reporting, recordkeeping, and other measures necessary to assess and report on visibility.

H. SIP Revisions and Progress Reports

The RHR requires control strategies to cover an initial implementation period through 2018, with a comprehensive reassessment and revision of those strategies, as appropriate, every ten years thereafter. Periodic SIP revisions must meet the core requirements of section 51.308(d) with the exception of BART. The requirement to evaluate sources for BART applies only to the first regional haze SIP. Facilities subject to BART must continue to comply with the BART provisions of section 51.308(e), as noted above. Periodic SIP revisions will assure that the statutory requirement of reasonable progress will continue to be met.

Each state also is required to submit a report to EPA every five years that evaluates progress toward achieving the RPG for each Class I area within the state and outside the state if affected by emissions from within the state.³⁵ The first progress report is due five years from submittal of the initial regional haze SIP revision. At the same time a 5-year progress report is submitted, a state must determine the adequacy of its existing SIP to achieve the established goals for visibility improvement.³⁶ The RHR contains more detailed requirements associated with these parts of the Rule.

I. State Consultation with Federal Land Managers (FLMs)

The RHR requires that states consult with Federal Land Managers (FLMs) before adopting and submitting their SIPs.³⁷ States must provide FLMs an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP. This consultation must include the opportunity for the FLMs to discuss their assessment of impairment of visibility

³⁵ 40 CFR 51.308(g).

³⁶ 40 CFR 51.308(h).

³⁷ 40 CFR 51.308(i).

in any Class I area and to offer recommendations on the development of the RPGs and on the development and implementation of strategies to address visibility impairment. Furthermore, a state must include in its SIP a description of how it addressed any comments provided by the FLMs. Finally, a SIP must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas.

J. The Grand Canyon Visibility Transport Commission and Section 309

In addition to the general requirements of the regional haze program, the RHR also includes 40 CFR 51.309, which contains the strategies developed by the Grand Canyon Visibility Transport Commission (GCVTC), established under Section 169B(f) of CAA.³⁸ Certain western States and Tribes were eligible to submit implementation plans under section 309 as an alternative method of achieving reasonable progress for Class I areas that were covered by the GCVTC's analysis—i.e., the 16 Class I areas on the Colorado Plateau. In order for States and Tribes to be able to utilize this section, however, the rule provided that EPA must receive an “Annex” to the GCVTC's final recommendations. The purpose of the Annex was to provide the specific provisions needed to translate the GCVTC's general recommendations for stationary source SO₂ reductions into an enforceable regulatory program. The rule provided that such an Annex, meeting certain requirements, be submitted to EPA no later than October 1, 2000.³⁹ The Annex was submitted in 2000, and EPA revised 40 CFR 51.309 in 2003.⁴⁰

V. Overview of State and EPA Actions on Regional Haze

A. EPA's Schedule to act on Arizona's RH SIP

³⁸ 42 U.S.C. § 7492(f).

³⁹ 40 CFR 51.309(d)(4) and 51.309(f).

⁴⁰ 68 FR 33764 (June 5, 2003).

EPA received a notice of intent to sue in January 2011 stating that we had not met the statutory deadline for promulgating Regional Haze FIPs and/or approving Regional Haze SIPs for dozens of states, including Arizona. This notice was followed by a lawsuit filed by several advocacy groups (Plaintiffs) in August 2011.⁴¹ In order to resolve this lawsuit and avoid litigation, EPA entered into a Consent Decree with the Plaintiffs, which sets deadlines for action for all of the states covered by the lawsuit, including Arizona. This decree was entered and later amended by the Federal District Court for the District of Columbia over the opposition of Arizona.⁴² Under the terms of the Consent Decree, as amended, EPA is currently subject to three sets of deadlines for taking action on Arizona’s Regional Haze SIP as listed in Table 1.⁴³

TABLE 1—CONSENT DECREE DEADLINES FOR EPA TO ACT ON ARIZONA’S RH SIP

EPA Actions		Proposed Rule	Final Rule
Phase 1	BART determinations for Apache, Cholla and Coronado	July 2, 2012	November 15, 2012
Phase 2	All remaining elements of Arizona’s RH SIP	December 8, 2012	July 15, 2013
Phase 3	FIP for disapproved elements of Arizona’s RH SIP (if required)	March 8, 2013	October 15, 2013

B. Summary of EPA’s Final Rule affecting Three BART Sources

As indicated in Table 1 above, the first phase of EPA’s action on Arizona’s Regional Haze SIP addressed three BART sources. The final rule for this phase (a partial approval and partial disapproval of the State’s plan and partial FIP) was signed by the Administrator on November 15, 2012 and published in the Federal Register on December 5, 2012. We estimate that the emission limits on the three sources will improve visibility by reducing NO_x emissions by 22,700 tons per year. Phase 2 is our action on the remainder of the regional haze plan

⁴¹ National Parks Conservation Association v. Jackson (D.D.C. Case 1:11-cv-01548).

⁴² National Parks Conservation Association v. Jackson (D.D.C. Case 1:11-cv-01548), Memorandum Order and Opinion (May 25, 2012) and Minute Order (July 2, 2012).

⁴³ National Parks Conservation Association v. Jackson (D.D.C. Case 1:11-cv-01548) Minute Order (November 13, 2012).

submitted by the State. Phase 3 will be a partial FIP that will address any portions of the State's plan that are disapproved in Phase 2.

C. History of State Submittals and EPA Actions

Since four of Arizona's twelve mandatory Class I Federal areas are on the Colorado Plateau, the State had the option of submitting a Regional Haze SIP under section 309 of the Regional Haze Rule. A SIP that is approved by EPA as meeting all of the requirements of section 309 is "deemed to comply with the requirements for reasonable progress with respect to the 16 Class I areas [on the Colorado Plateau] for the period from approval of the plan through 2018."⁴⁴ When these regulations were first promulgated, 309 submissions were due no later than December 31, 2003. Accordingly, the Arizona Department of Environmental Quality (ADEQ) submitted to EPA on December 23, 2003, a 309 SIP for Arizona's four Class I Areas on the Colorado Plateau. ADEQ submitted a revision to its 309 SIP, consisting of rules on emissions trading and smoke management, and a correction to the State's regional haze statutes, on December 31, 2004. EPA approved the smoke management rules submitted as part of the 2004 revisions,⁴⁵ but did not propose or take final action on any other portion of the 309 SIP.

In response to an adverse court decision,⁴⁶ EPA revised 40 CFR 51.309 on October 13, 2006, making a number of substantive changes and requiring states to submit revised 309 SIPs by December 17, 2007.⁴⁷ Subsequently, ADEQ sent a letter to EPA dated December 14, 2008, acknowledging that it had not submitted a SIP revision to address the requirements of 309(d)(4) related to stationary sources and 309(g), which governs reasonable progress requirements for Arizona's eight mandatory Class I areas outside of the Colorado Plateau.⁴⁸

⁴⁴ 40 CFR 51.309(a).

⁴⁵ 71 FR 28270 and 72 FR 25973.

⁴⁶ Center for Energy and Economic Development v. EPA, 398 F.3d 653 (D.C. Circuit 2005)

⁴⁷ 71 FR 60612.

⁴⁸ Letter from Stephen A. Owens, ADEQ, to Wayne Nastri, EPA (December 14, 2008).

EPA made a finding on January 15, 2009, that 37 states, including Arizona, had failed to make all or part of the required SIP submissions to address regional haze.⁴⁹ Specifically, EPA found that Arizona failed to submit the plan elements required by 40 CFR 309(d)(4) and (g). EPA sent a letter to ADEQ on January 14, 2009, notifying the state of this failure to submit a complete SIP. ADEQ later decided to submit a SIP under section 308, instead of section 309.

ADEQ adopted and transmitted its Regional Haze SIP under Section 308 of the Regional Haze Rule (hereafter the Arizona Regional Haze Plan or ARHP) to EPA Region 9 in a letter dated February 28, 2011. The plan was determined complete by operation of law on August 28, 2011.⁵⁰ The SIP was properly noticed by the State and available for public comment for 30 days prior to a public hearing held in Phoenix, Arizona, on December 2, 2010. Arizona included in its SIP responses to written comments from EPA Region 9, the National Park Service, the US Forest Service, and other stakeholders including regulated industries and environmental organizations. The Arizona Regional Haze Plan (ARHP) is available to review in the docket for this proposed rule.⁵¹

VI. EPA's Evaluation of Visibility Conditions in Arizona's Class I Areas

A. Affected Class I Areas

Arizona has 12 Class I areas as listed in Table 2. ADEQ identified eighteen other Class I areas located outside the State that may be affected by its emissions. These other Class I areas are in Colorado, New Mexico, and Utah as listed in Table 3. Each Class I area has an associated IMPROVE monitor sited to be representative of visibility conditions in that area. EPA proposes to find that ADEQ has identified all Class I areas within and outside the State that are potentially affected by its emissions, as required pursuant to 40 CFR 51.308(d).

⁴⁹ 74 FR 2392.

⁵⁰ CAA section 110(k)(1)(B).

⁵¹ "Arizona State Implementation Plan, Regional Haze Under Section 308 Of the Federal Regional Haze Rule," February 28, 2011.

TABLE 2—CLASS I AREAS IN ARIZONA
POTENTIALLY AFFECTED BY ARIZONA EMISSIONS

Class I Area		IMPROVE Monitor Code
1	Chiricahua National Monument	CHIR1
2	Chiricahua Wilderness	CHIR1
3	Galiuro Wilderness	CHIR1
4	Grand Canyon National Park	GRCA2
5	Mazatzal Wilderness	IKBA1
6	Pine Mountain Wilderness	IKBA1
7	Mount Baldy Wilderness	BALD1
8	Petrified Forest National Park	PEFO1
9	Saguaro National Park	SAGU1, SAWE1
10	Sierra Ancha Wilderness	SIAN1
11	Superstition Wilderness	TONT1
12	Sycamore Canyon Wilderness	SYCA1

TABLE 3—CLASS I AREAS OUTSIDE OF ARIZONA POTENTIALLY AFFECTED BY ARIZONA EMISSIONS⁵²

Class I Area	State	IMPROVE Monitor Code
Mesa Verde National Park	Colorado	MEVE1
Black Canyon of the Gunnison NP, La Garita WA, Weminuche WA	Colorado	WEMI1
Great Sand Dunes NM	Colorado	GRSA1
Eagles Nest WA, Flat Tops WA, Maroon Bells-Snowmass WA, West Elk WA	Colorado	WHRI1
Gila Wilderness Area	New Mexico	GICL1
Bosque del Apache National Wildlife Refuge	New Mexico	BOAP1
San Pedro Parks Wilderness Area	New Mexico	SAPE1
Bandelier National Monument, Pecos WA	New Mexico	BAND1
Zion NP	Utah	ZION1
Bryce Canyon NP	Utah	BRCA1
Capitol Reef National Park	Utah	CAPI1
Canyonlands NP, Arches NP	Utah	CANY1

B. Determination of Visibility Conditions and Uniform Rate of Progress

ADEQ developed the visibility estimates in the ARHP using models and analytical tools provided by the WRAP. We have reviewed the models and analytical tools used by the WRAP

⁵² Source ARHP Section 12.4 and Appendix B, Section 2.

and those used by ADEQ in developing the ARHP. As explained below, we found that the models were used appropriately, and monitoring data were processed appropriately, consistent with EPA guidance in effect at the time of their use. The models used by the WRAP were state-of-the-science at the time the modeling was conducted and model performance was adequate for the purposes for which they were used.⁵³

Baseline and Natural Visibility Conditions: Baseline visibility conditions represent the degree of visibility impairment for the 20 percent least impaired days and 20 percent most impaired days for each calendar year from 2000-2004. Using monitoring data for 2000 through 2004, states are required to calculate the average degree of visibility impairment for each Class I area based on the average of annual values over the five-year period. Chapter 6.2 and Appendix C of the ARHP provide the details of the deciview calculations of the baseline and natural conditions for each Class I area during 2000-2004.

For each Class I area, ADEQ calculated, in deciviews, the current visibility conditions (worst 20 percent of days) for the 2000–2004 baseline period (Table 4, column A) and the future natural conditions for 2064 (Table 4, column D), the long-term goal of the regional haze program. These correspond to tables 6.1 and 6.2 in the ARHP. ADEQ calculated the dv value representing the best visibility days during 2000–2004 baseline conditions, a value that must be maintained in future years.⁵⁴ Natural conditions were calculated using a refined approach, as allowed in “EPA’s 2003 Natural Visibility Guidance.” As discussed in EPA’s WRAP TSD, WRAP and others developed the “Natural Haze Levels II” approach.⁵⁵ This used time-varying

⁵³ For our detailed review and discussion, please see “Technical Support Document for Technical Products Prepared by the Western Regional Air Partnership in Support of Western Regional Haze Plans”, Final, February 2011 (WRAP TSD).

⁵⁴ See Table 5 of this notice for a comparison of the visibility levels on the “best 20 percent of days” between 2000–2004 and projected 2018 deciview values for the same set of days at each Arizona Class I area.

⁵⁵ “Natural Haze Levels II: Application of the New IMPROVE Algorithm to Natural Species Concentrations Estimates; Final Report by the Natural Haze Levels II Committee to the RPO Monitoring/Data Analysis Workgroup”, presentation at WRAP Attribution of Haze Workgroup Meeting, July 26-27, 2006, Denver, CO. web

Class I area-specific data and more robust statistical assumptions, along with the revised IMPROVE equation⁵⁶ for translating pollutant concentrations into extinction, in order to derive more refined visibility estimates that remain consistent with the approach in EPA's Guidance.

TABLE 4—VISIBILITY CALCULATIONS FOR ARIZONA CLASS I AREAS⁵⁷
(20 PERCENT WORST DAYS IN DECIVIEWS)

Class I Area	A	B	C	D	E
	Baseline 2000–2004	Reasonable Progress Goal (RPG) 2018	Uniform Rate of Progress (URP) Estimate	Natural Conditions 2064	Years Required to Reach Natural Conditions at RPG Rate of Improvement
Chiricahua NM, Chiricahua WA, Galiuro WA (CHIR1 monitor)	13.43	13.35	11.98	7.20	1,038
Grand Canyon NP (GRCA2 monitor)	11.66	11.14	10.58	7.04	125
Mazatzal WA, Pine Mountain WA (IKBA1 monitor)	13.35	12.76	11.79	6.68	159
Mount Baldy WA (BALD1 monitor)	11.85	11.52	10.54	6.24	234
Petrified Forest NP (PEFO1 monitor)	13.21	12.85	11.64	6.49	258
Saguaro NP – East Unit (SAGU1)	16.22	14.82	12.88	6.46	8,370

page: http://vista.cira.colostate.edu/improve/Publications/GrayLit/gray_literature.htm direct link:
http://vista.cira.colostate.edu/improve/Publications/GrayLit/029_NaturalCondII/naturalhazelevelsIIreport.ppt

⁵⁶ Revised IMPROVE algorithm for Estimating Light Extinction from Particle Speciation Data, IMPROVE, January 2006. web page http://vista.cira.colostate.edu/improve/publications/graylit/gray_literature.htm.

⁵⁷ Source: Tables 6.1, 6.2, 6.3, and 11.9, ARHP.

monitor)					
Saguaro NP – West Unit (SAWE1 monitor)	14.83	15.99	13.90	6.24	624
Sierra Ancha WA (SIAN1 monitor)	13.67	13.17	12.02	6.59	197
Superstition WA (TONT1 monitor)	14.16	13.89	12.38	6.54	401
Sycamore Canyon WA (SYCA1 monitor)	15.25	15.00	13.25	6.65	478

Uniform Rate of Progress Estimate: ADEQ calculated the uniform rate of progress (URP) estimate for each Class I area using the 2000–2004 baseline deciview and 2064 programmatic goal (natural conditions) deciview values. The URP is represented as a straight line drawn between a given Class I area’s 2004 baseline value and 2064 natural condition or programmatic goal value. This assumes the same increment of progress every year for 60 years. Table 6.3 of the ARHP shows the results of the uniform rate of progress calculation. In addition, ADEQ also provided uniform rates of progress for the extinction due to each pollutant contributing to visibility impairment. Tables 9.2 through 9.11 and figures 9.1 through 9.10 of the ARHP illustrate a uniform rate of progress calculation and a graphic representation for each Class I area, for all the individual pollutants (sulfate, nitrate, organic carbon, elemental carbon, fine soil, coarse mass, and sea salt). ADEQ then calculated each Class I area’s URP estimate for 2018, in Table 6.3 of the ARHP. The URPs for each Class I area are listed in Table 4, column C of this proposal.

In summary, Arizona has produced the following visibility estimates in deciviews for each Class I area: Baseline visibility conditions; a ten-year reasonable progress estimate for 2018; a 2018 uniform rate of progress estimate for comparison purposes; and a 2064 natural

conditions estimate. We propose to find that these estimates are consistent with the requirements of the RHR, particularly those requirements at 40 CFR 51.308(d)(2)(i) and (iii). Also, we propose to find that Arizona has produced URP estimates consistent with the requirement in 40 CFR 51.308(d)(1)(i)(B).

Visibility Projections for 2018 and the Reasonable Progress Goals: The RHR requires states to establish goals, expressed in deciviews, for each Class I area within the state that provide for reasonable progress toward achieving natural visibility conditions by 2064. The RPGs must improve provide for an improvement in visibility for the most impaired days, and ensure no degradation in visibility for the least impaired days over the period of the SIP. The RPGs for the ARHP show visibility improvement by 2018 for the “worst 20 percent of days” in all Class I areas when compared to the baseline “worst” days. The State’s RPGs for the worst 20 percent of days can be seen in Table 4, column B. The RPGs for the best 20 percent of days can be seen in Table 5.

Table 5—Baseline and 2018 Visibility Conditions for Arizona Class I Areas⁵⁸
(Best 20% Days in Deciviews)

Class I Area	2000–04 Baseline	2018 Reasonable Progress Goal (RPG)
Chiricahua NM, Chiricahua WA, Galiuro WA (CHIR1 monitor)	4.91	4.94
Grand Canyon NP (GRCA2 monitor)	2.16	2.12
Mazatzal WA, Pine Mountain WA (IKBA1 monitor)	5.40	5.17
Mount Baldy WA (BALD1 monitor)	2.98	2.86
Petrified Forest NP (PEFO1 monitor)	5.02	4.73
Saguaro NP – East Unit (SAGU1 monitor)	6.94	7.04
Saguaro NP – West Unit (SAWE1 monitor)	8.58	8.34
Sierra Ancha WA (SIAN1)	6.16	5.88

⁵⁸ Source: Table 6.3, ARHP.

monitor)		
Superstition WA (TONT1 monitor)	6.46	6.22
Sycamore Canyon WA (SYCA1 monitor)	5.58	5.49

Also, as required by the RHR, Arizona estimated the time each Class I area would take to reach natural conditions under the RPG rate of visibility improvement (see Table 4, column E). While some of the time estimates are close to the 2064 natural conditions goal, none of the estimates shows that natural conditions will be achieved by 2064 in Arizona's Class I areas. EPA's evaluation of these Reasonable Progress Goals can be found in Section VIII of this document.

C. Arizona's Emissions Inventories

The RHR requires a statewide emissions inventory of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any mandatory Class I area.⁵⁹ The ARHP provides an emissions inventory for 2002, representing the mid-point of the 2000-2004 baseline timeframe. Also, to chart progress in each Class I area, the ARHP includes estimated emissions for 2018, the end of the first planning period. The emissions inventories include estimated annual emissions for the following haze producing pollutants: NO_x, SO₂, VOC, PM_{2.5}, PM_{coarse}⁶⁰ and NH₃. The emissions inventories are summarized below in ten source categories: point sources, anthropogenic fire, wildfire, biogenic, area sources, on-road mobile, off-road mobile, road dust, fugitive dust and windblown dust. See Tables 6A and 6B.

TABLE 6A— EMISSIONS INVENTORY FOR ARIZONA REGIONAL HAZE POLLUTANTS BY SOURCE CATEGORY FOR 2002 AND 2018. (TONS PER YEAR)⁶¹

Category	SO ₂ [tpy]		NO _x [tpy]		VOC [tpy]		NH ₃ [tpy]	
	2002	2018	2002	2018	2002	2018	2002	2018
Point Sources	94,716	67,429	69,968	68,748	5,464	9,401	531	729

⁵⁹ 40 CFR 51.308(d)(4)(v).

⁶⁰ These are particles smaller than 10 microns, but larger than 2.5 microns.

⁶¹ Arizona Regional Haze Plan, Tables 8.1, 8.2, 8.7 and 8.8.

Anthropogenic Fire	190	181	725	676	855	745	97	73
Wildfire	4,369	4,369	16,493	16,494	36,377	36,381	3,781	3,782
Biogenic ⁶²	0	0	27,664	27,664	1,576,698	1,576,698		
Area Source	2,677	3,408	9,049	12,783	102,918	170,902	32,713	36,248
On-road Mobile	2,715	762	178,009	53,508	110,424	52,872	5,035	7,606
Off-road Mobile	4,223	546	66,414	43,249	56,901	36,033	48	64
Total	108,890	76,695	368,322	223,122	1,889,637	1,883,032	42,205	48,502

TABLE 6B—EMISSIONS INVENTORY FOR ARIZONA REGIONAL HAZE POLLUTANTS BY SOURCE CATEGORY FOR 2002 AND 2018(TONS PER YEAR)⁶³

Category	PM _{2.5} [tpy]		PM _{coarse} [tpy]	
	2002	2018	2002	2018
Point Sources	934	1,421	8,473	8,650
Anthropogenic Fire	1,033	927	17	9
Wildfire	61,225	61,230	10,107	10,108
Area Source	9,400	13,727	1,384	1,766
On-road Mobile	3,344	2,318	1,004	1,258
Off-road Mobile ⁶⁴	4,758	3,032		
Road Dust	3,059	4,371	24,381	34,799
Fugitive Dust	7,589	11,425	54,934	91,967
Windblown Dust	6,422	6,422	57,796	57,796
Total	97,764	104,873	158,096	206,353

The 2018 inventory is based on assumptions about the rate of population and economic growth between 2002 and 2018. These projections were completed in 2006 and 2007, before the nationwide recession that began in late 2008. The inventory was updated in 2009 with more up-to-date data on projected emissions from electric generating units, but many source categories that are sensitive to economic growth projections (such as area sources, road dust and fugitive dust) were not updated.⁶⁵ A reconsideration of the emissions with more current economic data

⁶² The ARHP did not report any biogenic NH₃.

⁶³ ARHP, Tables 8.3 – 8.6. For the purposes of this analysis, primary organic aerosols, elemental carbon and fine soil are assumed to be in the PM_{2.5} partition. These were combined for ease of comparison with the IMPROVE monitoring data.

⁶⁴ The ARHP did not include any PM₁₀ emissions directly attributed to off-road vehicles.

⁶⁵ See ERG Technical Memorandum entitled “WRAP PRP18b Emissions Inventory – Revised Point and Area Source Projections”, October 16, 2009.

may yield lower emissions totals for some source categories. Nonetheless, the inventory was developed with the best available information at the time. The 2018 projected inventory does not reflect emissions reductions from BART determinations made by EPA.⁶⁶

Since the purpose of the regional haze program is to eliminate human-caused visibility impairment at Class I areas, it is useful to look at the proportion of the total emissions that are anthropogenic. It is also useful to consider the projected change in emissions during the planning period.

TABLE 7—ASSESSMENT OF THE EMISSIONS INVENTORY⁶⁷

Pollutant	Anthropogenic Share in 2002 (percentage)	Change in Total Emissions (2002-2018) (percentage)
NO _x	88.0%	-39.4%
SO ₂	96.0%	-29.6%
VOC	14.6%	-0.3%
NH ₃	91.0%	14.9%
PM _{2.5}	20.9%	-0.7%
Fine Soil	59.4%	30.1%
PM _{coarse}	57.0%	30.5%

Table 7 shows that the majority of VOC and PM_{2.5} emissions in Arizona are not from the anthropogenic share, and thus most of these emissions are from natural or uncontrollable sources. Nearly half of the PM_{coarse} and fine soil emissions are similarly from uncontrollable sources. NO_x, SO₂ and NH₃ are predominantly anthropogenic in origin. Table 7 also shows that inventory projections indicate significant decreases in NO_x and SO₂ emissions. EPA expects that 2018 emissions will be even lower than projected in the plan due to our FIP actions.⁶⁸ The VOC emissions are projected to be relatively flat over time, but that is not surprising, given the small portion of the inventory that is anthropogenic. The projected increase in PM_{coarse} emissions is a

⁶⁶ 77 FR 72512.

⁶⁷ From ARHP, Tables 8.3 – 8.8. For the purposes of this analysis, primary organic aerosols and elemental carbon are treated as PM_{2.5}, but fine soil is listed separately. For this table, we have treated wildfires, biogenic emissions and windblown dust as non-anthropogenic.

⁶⁸ 77 FR 72512.

potential concern. However, EPA concludes that, for the reasons explained above, these 2018 emissions estimates may not be reliable.

The inventories presented in the ARHP were developed by the WRAP. The EPA reviewed the WRAP methodology and assumptions and determined that they were based on the best available science and information at the time they were developed.⁶⁹ Based on this analysis, EPA proposes to find that the 2002 and 2018 inventories are adequate for the regional haze plan.

However, the RHR also requires that Arizona to provide the most recent inventory available.⁷⁰ Under the Consolidated Emissions Reporting Rule, states are required to compile and submit to EPA comprehensive statewide emissions inventories every three years.⁷¹ Under this emissions reporting rule, the State was required to develop and submit inventories for 2005 and 2008. Both of these inventories were required to have been completed by the time the ARHP was submitted in February 2011. Yet, the State did not submit the most recent inventory with the plan. The lack of this inventory does not affect our ability to evaluate other elements of the plan. Nevertheless, given this omission, EPA proposes to disapprove this element of the plan. However, if the State submits a complete 2008 inventory in a format consistent and comparable with the 2002 and 2018 inventories submitted in the plan, EPA proposes to approve the plan as having met this requirement.

D. Sources of Visibility Impairment

Arizona evaluated the contributions of different components to visibility impairment on the best and worst 20 percent visibility days in chapter seven of the ARHP.⁷² In addition to the five-year average of the baseline period (2000-2004), Arizona's analysis included monthly and

⁶⁹See EPA document "Technical Support Document for Technical Products Prepared by the Western Regional Air Partnership in Support of Western Regional Haze Plans", Final, February 2011 (WRAP TSD).

⁷⁰ 40 CFR 51.308(d)(4)(v).

⁷¹ 67 FR 39602.

⁷² Arizona State Implementation Plan: Regional Haze Under Section 308 of the Federal Regional Haze Rule; January 2011.

daily data for some sites that illustrate some seasonal differences as well as the impact observed on organic carbon contributions to visibility impairment due to nearby wildfires.

As explained above, Arizona's visibility projections for the worst 20 percent days in 2018 for all of the State's Class I areas represent a slower rate of improvement in visibility than is needed to attain natural conditions by 2064. In order to better understand why Arizona's Class I areas are not expected to achieve greater progress during this implementation period, EPA conducted an additional analysis of IMPROVE monitoring data for the days with the worst 20 percent visibility impairment, from the 2000-2004 baseline period and from the more recent 2005- 2010 period.⁷³ This analysis confirmed the percent contribution of each component of the aerosol for the 2000-2004 baseline period presented in the ARHP. In addition, the analysis of the more recent data enabled us to evaluate trends in the relative contributions of various components over the first several years of the implementation period. Table 8 shows how much each pollutant contributed to light extinction at each of Arizona's Class I areas during the period from 2000-2004. In most areas, organic carbon, coarse mass and ammonium sulfate are the species that contribute most significantly to visibility impairment. On average, these components account for 72.9 percent of the light extinction. In isolated cases, ammonium nitrate can play a smaller but significant role (10.6-14.3 percent) in visibility impairment. Elemental carbon and fine soil also can have significant contributions in some cases, but in most of those are correlated with organic carbon and coarse mass, respectively, and so are assumed to come from the same sources. That is, the data usually show significant elemental carbon in association with organic carbon, as one would expect from fires. Elevated levels of fine soil are usually associated with elevated levels of coarse mass, which implies a common source of these pollutants as well.

⁷³ See EPA Analysis of IMPROVE Monitoring Data From 2000-2010 (December 6, 2012) in the docket for details on the data analysis presented in this section.

IMPROVE monitoring data from 2005 through 2010 indicate that the amount of light extinction due to aerosol has decreased since the baseline period overall, and the contribution to total light extinction by most pollutants has decreased as well.⁷⁴ Most significantly, the contribution from organic carbon has decreased by 2.2 inverse megameters (Mm^{-1})⁷⁵ on a statewide average. The exception to this pattern is a very slight but measurable increase in light extinction due to ammonium sulfate, which increased by 0.8 Mm^{-1} statewide, and by 1.0 to 1.7 mM^{-1} at certain monitors. The sections below outline the species-specific contributions to visibility impairment, and the recent trends in more detail.

TABLE 8—PERCENT OF TOTAL AEROSOL LIGHT EXTINCTION CONTRIBUTED BY EACH POLLUTANT (WORST 20 PERCENT OF DAYS, AVERAGED OVER THE BASELINE PERIOD)⁷⁶

IMPROVE SITE/Class I Area	Ammonium Nitrate	Ammonium Sulfate	Organic Carbon	Elemental Carbon	Coarse Mass	Fine Soil	Sea Salt
CHIR1/ Chiricahua NM, Chiricahua WA, Galiuro WA	5.0	26.1	22.9	5.8	30.9	8.9	0.5
GRCA2/ Grand Canyon NP	11.3	21.5	39.8	9.2	12.6	5.0	0.4
IKBA1/ Mazatzal WA, Pine Mountain WA	14.1	22.1	26.3	8.4	20.6	8.3	0.2
BALD1/ Mount Baldy WA	4.9	22.0	46.6	10.5	11.3	5.2	0.1
PEFO1/ Petrified Forest NP	6.6	20.2	34.4	10.3	21.7	6.7	0.1
SAGU1/ Saguaro NP (East)	14.3	19.8	28.6	8.3	19.0	9.4	0.4
SAWE1/ Saguaro NP (West)	10.6	16.5	19.4	7.2	31.2	14.5	0.7

⁷⁴ See EPA Analysis of IMPROVE Monitoring Data From 2000-2010 (December 6, 2012) Table 5 in the docket, which shows the changes in average light extinction for each aerosol component at each site between the periods 2000-2004 and 2005-2010.

⁷⁵ Light extinction is the attenuation of light due to scattering and absorption as it passes through a medium. Reconstructed light extinction (often denoted as b_{ext}) is expressed in units of inverse megameters ($1/\text{Mm}$ or Mm^{-1}). While the haze index, expressed in deciviews (dv), is a useful measure for tracking progress in improving visibility, light extinction is the most useful measure for evaluating the relative contributions of pollutants to visibility impairment. These metrics are related by the equation $\text{HI} = 10 \ln(b_{\text{ext}}/10)$; where: HI is the Haze Index in dv, \ln is the natural log, and b_{ext} is the reconstructed light extinction in Mm^{-1} .

⁷⁶ Data were extracted from the “IMPROVE Aerosol, RHR (New Equation)” dataset from the portal at the website: <http://views.cira.colostate.edu/fed/QueryWizard/Default.aspx>. EPA’s intermediate data files on IMPROVE Monitoring Data Analysis (December 6, 2012) is available in the docket to today’s proposed rule.

SIANI/ Sierra Ancha WA	9.7	20.1	37.0	8.4	18.0	6.5	0.3
SYCA1/ Sycamore Canyon WA	5.2	13.0	32.5	9.4	22.6	16.9	0.3
TONT1/ Superstition WA	12.2	21.0	29.8	8.8	21.2	6.7	0.3
Mean	9.4	20.2	31.7	8.6	20.9	8.8	0.3

1. Chiricahua National Monument, Chiricahua Wilderness Area and Galiuro Wilderness Area

Visibility impairment at Chiricahua National Monument, and Chiricahua and Galiuro Wilderness Areas are represented by the conditions at the IMPROVE monitor in the Chiricahua National Monument (CHIR1). Average monitored concentrations over the period of 2000-2004 indicate that coarse mass, organic carbon and ammonium sulfate are the most significant contributors to visibility impairment, together accounting for 79.9 percent of the light extinction. Fine soil is the next largest contributor to light extinction with 8.9 percent, and is correlated with periods of high coarse mass impact.

IMPROVE data averaged over 2005-2010 show measurable decreases in the light extinction due to organic carbon and coarse mass of over 3 Mm^{-1} each. There was a slight increase in light extinction due to ammonium sulfate measured during these years of 1.1 mM^{-1} , but overall the total light extinction has decreased significantly between the two periods by 6.7 Mm^{-1} .

2. Grand Canyon National Park

Visibility impairment at Grand Canyon National Park is represented by the conditions at the IMPROVE monitor at Hance Camp (GRCA2). Average monitored concentrations over the period of 2000-2004 indicate that 39.8 percent of the light extinction is due to organic carbon alone. The next significant contributor is ammonium sulfate accounting for 22.1 percent of the light extinction. Coarse mass and fine soils contribute 17.6 percent and ammonium nitrate

contributes 11 percent of the light extinction. Elemental carbon accounts for 9.2 percent of light extinction, and is correlated with periods of high organic carbon impact.

IMPROVE data averaged over 2005-2010 show a slight decrease in the light extinction due to organic carbon of 1.1 Mm^{-1} . The changes in contribution to light extinction from the other aerosol components were small or negligible between the two periods, with a very slight decrease in total aerosol light extinction of 0.8 Mm^{-1} .

3. Mazatzal Wilderness Area and Pine Mountain Wilderness Area

Visibility impairment at Mazatzal and Pine Mountain Wilderness Areas is represented by the conditions at the IMPROVE monitor at Ike's Backbone (IKBA1). Average monitored concentrations over the period of 2001-2004 indicate that coarse mass, organic carbon and ammonium sulfate are the most significant contributors to visibility impairment, each contributing similarly to 69.0 percent of the light extinction. Ammonium nitrate contributes 14.1 percent, and fine soil and elemental carbon each contribute about 8 percent, and are correlated with periods of high coarse mass and organic carbon impact, respectively.

IMPROVE data averaged over 2005-2010 show a slight decrease in light extinction due to ammonium nitrate of 1.2 Mm^{-1} and a slight increase in light extinction due to ammonium sulfate of 1.0 Mm^{-1} since the average values of the baseline period.

4. Mount Baldy Wilderness Area

Visibility impairment at Mount Baldy Wilderness Area is represented by the conditions at the IMPROVE monitor in the wilderness area (BALD1). Similar to Grand Canyon National Park, average monitored concentrations over the period of 2000-2004 in Mount Baldy Wilderness indicate that nearly half of the light extinction is due to organic carbon alone and the next significant contributor is ammonium sulfate accounting for 22.0 percent of the light extinction. Coarse mass and fine soils contribute over 16.5 percent of the light extinction.

Elemental carbon contributes 10.5 percent to the light extinction and is correlated with periods of high organic carbon impact.

IMPROVE data averaged over 2005-2010 show a measurable decrease in light extinction due to organic carbon of 2.0 Mm^{-1} and a overall decrease in total aerosol light extinction of 1.1 Mm^{-1} since the average values of the baseline period.

5. Petrified Forest National Park

Visibility impairment at Petrified Forest National Park is represented by the conditions at the IMPROVE monitor in the National Park (PEFO1). Average monitored concentrations over the period of 2000-2004 indicate that organic carbon, coarse mass, and ammonium sulfate are the most significant contributors to visibility impairment, together accounting for 76.3 percent of the light extinction. Elemental carbon is the next largest contributor to light extinction at 10.3 percent, and is correlated with periods of high organic carbon impact.

IMPROVE data averaged over 2005-2010 show that light extinction due to organic carbon and coarse mass decreased by 2.6 and 1.2 Mm^{-1} , respectively since the baseline period. Total aerosol light extinction decreased by 3.0 Mm^{-1} since the average values of the baseline period.

6. Saguaro National Park (East Unit and West Unit)

There are IMPROVE monitors in both the East and West Units of Saguaro National Park that represent the visibility impairment throughout the National Park (SAGU1 and SAWE1). Average monitored concentrations over the period of 2002-2004 indicate that organic carbon, coarse mass, and ammonium sulfate are the most significant contributors to visibility impairment, together accounting for 67.0 to 67.5 percent of the light extinction. Ammonium nitrate contributes 10.6 to 14.3 percent and fine soil, correlated with coarse mass, contributes 9 to 15 percent.

IMPROVE data averaged over 2005-2010 show that light extinction due to organic carbon decreased since the baseline period by 5.5 and 2.9 Mm^{-1} , at SAGU1 and SAWE1, respectively. Also, SAGU1 measured a decrease in contribution from ammonium nitrate of 2.2 Mm^{-1} and SAWE1 measured a decrease in contribution of coarse mass and fine soil together of 5.7 Mm^{-1} . These monitors indicate that the total aerosol light extinction has improved at these two areas more than at any area in Arizona, with decreases of 8.2 and 9.8 Mm^{-1} at the East and West Units, respectively.

7. Sierra Ancha Wilderness Area

Visibility impairment at Sierra Ancha Wilderness Area is represented by the conditions at the IMPROVE monitor in the Wilderness Area (SIAN1). Average monitored concentrations over the period 2001-2004 indicate that 37.0 percent of the light extinction is due to organic carbon. Coarse mass and fine soil together account for almost 24.4 percent and ammonium sulfate accounts for 20.1 percent of the light extinction.

IMPROVE data averaged over 2005-2010 show that light extinction due to ammonium nitrate and coarse mass decreased by 1.3 and 1.5 Mm^{-1} , respectively since the baseline period. Slight increases in the contribution from ammonium sulfate, as well as from organic and elemental carbon lead to a total aerosol light extinction that is decreased only slightly, by 1.3 Mm^{-1} , since the average values of the baseline period.

8. Sycamore Canyon Wilderness Area

Visibility impairment in the Sycamore Canyon Wilderness Area is represented by the conditions at the IMPROVE monitor in the Wilderness Area (SYCA1). Average monitored concentrations over the period 2001-2004 indicate that 32.5 percent of the light extinction is due to organic carbon. Other significant contributors are coarse mass (22.6 percent), fine soil (16.9 percent), and ammonium sulfate (13.0 percent). Fine soil is often correlated with coarse mass,

but there are also times when the two are not correlated. For example, July 13 and November 22, 2002 have high concentrations of fine soil but not coarse mass. Elemental carbon contributes 9.4 percent to the light extinction and is correlated with periods of high organic carbon impact.

IMPROVE data averaged over 2005-2010 show that light extinction due organic carbon and fine soil decreased by 1.3 and 1.2 Mm^{-1} , respectively since the baseline period. The contribution from coarse mass increased between the two time periods by 1.4 Mm^{-1} . Total aerosol light extinction decreased only slightly, by 0.8 Mm^{-1} , since the baseline period.

9. Superstition Wilderness Area

Visibility impairment in the Superstition Wilderness Area is represented by the conditions at the IMPROVE monitor in the Tonto National Monument (TONT1). Average monitored concentrations between 2001 and 2004 indicate that 30 percent of the light extinction is due to organic carbon. Coarse mass and fine soil together account for 27.9 percent and ammonium sulfate accounts for 21.0 percent of the light extinction. Finally, ammonium nitrate contributes 12.2 percent of the light extinction.

IMPROVE data averaged over 2005-2010 show that light extinction due organic carbon and ammonium nitrate decreased by 4.1 and 1.0 Mm^{-1} , respectively since the baseline period. This site exhibited the largest increase in light extinction from ammonium sulfate in Arizona: 1.7 Mm^{-1} . However, total aerosol light extinction still decreased by 3.4 Mm^{-1} , since the baseline period.

VII. EPA's Evaluation of Arizona's BART Analyses and Determinations

A. Arizona's Identification of BART Sources

Pursuant to Section 169A of the CAA and 40 CFR 51.308(e), states are required to evaluate the use of retrofit controls at certain larger, older stationary sources in order to address

visibility impacts from these sources. The best available retrofit technology (BART) process, as set forth in the RHR and the final BART Guidelines, consists of three steps. First, states identify those stationary sources that are eligible for BART using criteria set forth in the RHR, such as industrial source category, dates of initial construction and operation, and potential to emit. For those sources that are considered BART-eligible, states then determine if they “cause or contribute” to visibility impairment at a Class I area through the use of visibility modeling. For those sources that cause or contribute to Class I visibility impairment, states must then perform a case-by-case determination of what retrofit control measures are appropriate as BART. This determination is performed on a pollutant-by-pollutant basis for each visibility affecting pollutant.

1. Arizona’s Identification of Sources Potentially Eligible for BART

The first step of the BART process is to identify all of the BART-eligible sources within the jurisdiction of the State and using the following criteria: 1) one or more emission units at the facility are classified in one of the 26 industrial source categories listed in CAA section 169A(g)(7); 2) the emission unit(s) did not operate before August 7, 1962, but was in existence on August 7, 1977; and 3) the total potential to emit of any visibility impairing pollutant from the eligible emission units at a single source is greater or equal to 250 tons per year.

Using these criteria, the Stationary Sources Joint Forum (SSJF) of the WRAP identified units at several facilities under the jurisdiction of state and local agencies in Arizona that were considered potentially BART-eligible. Using this information, ADEQ developed an initial list of fourteen facilities that it identified as “potentially subject-to-BART.”⁷⁷ Based on CALPUFF modeling performed by WRAP, ADEQ refined this initial list to include only those facilities

⁷⁷ As identified in Table 1 of “Summary of WRAP RMC BART Modeling for Arizona” Draft No. 5, May 7, 2005. Initial draft released on April 4, 2005.

considered to contribute to impairment of visibility in a Class I area within 300 kilometers.⁷⁸

These facilities are listed in Table 9 below.

TABLE 9—POTENTIALLY BART-ELIGIBLE SOURCES IN ARIZONA

Facility Name	Source Category	Number of BART-eligible Units
Tucson Electric Power (TEP) Sundt Generating Station	Fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input	1
Arizona Electric Power Cooperative (AEP) Apache Generating Station		3
Arizona Public Service (APS) Cholla Power Plant		3
Salt River Project (SRP) Coronado Generating Station		2
APS West Phoenix Power Plant		3
CalPortland Rillito Cement Plant	Portland cement plant	1
Chemical Lime Nelson Plant	Lime Plant	2
Catalyst Paper Snowflake Mill	Fossil-fuel boilers of more than 250 million British thermal units per hour heat input	1
ASARCO Hayden Smelter	Primary Copper Smelter	10
Freeport McMoRan (FM) formerly Phelps-Dodge) Miami Smelter		9

Please note that we have addressed ADEQ’s BART determinations for Apache Units 1-3, Cholla Units 2-4 and Coronado Units 1 and 2 in a separate action.⁷⁹ As a result, the BART determinations for these three facilities are not discussed in today’s proposal.

2. Arizona’s Determination of Sources not BART-eligible

ADEQ contacted the potentially BART-eligible facilities identified by SSJF in order to inform them of their status and to obtain confirmation or, where necessary, more information. ADEQ received responses and additional information from multiple facilities, and subsequently

⁷⁸ Arizona Regional Haze SIP, Appendix D (Technical Support Document), page 13.

⁷⁹ See proposal at 77 FR 42834 and final action at 77 FR 72512.

revised this initial list of BART-eligible sources. These revisions primarily affected the BART-eligibility status of two facilities as described below.

Hayden Smelter: ADEQ sent a letter to ASARCO on June 13, 2007 indicating that 10 units at the Hayden smelter, including five converters and three anode furnaces, were BART-eligible for SO₂ and PM₁₀ emissions. In response, ASARCO provided a letter to ADEQ on October 1, 2007, in which it stated that only three converters and two anode furnaces were BART-eligible based on operation dates prior to 1962 in the case of two converters, and a construction (“in existence”) date of 2001 in the case of one of the anode furnaces. In addition, ASARCO stated that ADEQ’s estimate of its potential to emit (PTE) was overestimated, as it was based on facility-wide PTE estimates which included the PTE of non BART-eligible sources. In its letter, ASARCO provided information re-apportioning the fraction of the facility-wide PTE attributable to the BART-eligible sources.

ADEQ performed its own research of historical smelter logs and agreed with ASARCO’s assertion that only three converters and two anode furnaces are BART-eligible. It took no action regarding ASARCO’s PTE apportionment information, citing a lack of documentation. However, as part of the Title V permit renewal process, ADEQ subsequently revised its estimate of facility-wide PM₁₀ PTE downward. ADEQ concluded that the BART-eligible units do not have a PM₁₀ PTE greater than 250 tpy, and determined that the units at the Hayden smelter are not BART eligible for PM₁₀.⁸⁰ This did not alter ADEQ’s determination that the Hayden smelter was subject to BART for SO₂.

Sundt Generating Station: ADEQ identified Units 3 and 4 at Sundt as potentially BART-eligible units. On January 2, 2007, Tucson Electric Power (TEP) provided a letter to ADEQ indicating that Unit I3 was not a BART-eligible unit because it commenced commercial

⁸⁰ Arizona Regional Haze SIP, page 150.

operation on June 26, 1962, which is prior to the August 7, 1962 “in operation” date.⁸¹ In addition, TEP provided information indicating that Unit I4 was reconstructed in 1987 as part of a coal conversion project. Under the BART Guidelines, reconstructed sources are generally considered new sources at the time of reconstruction.⁸² However, although Unit I4 was reconstructed in 1987, the reconstruction was undertaken as the result of an order issued pursuant to Section 301(c) of the Power Plant and Industrial Fuel Use Act of 1978 and, under Arizona’s PSD rule (AAC R9-3-304), a project undertaken pursuant to such an order did not constitute a major modification at the time that reconstruction occurred. As a result, the reconstruction of Unit I4 did not undergo PSD review. TEP indicated that it considers PSD to be immaterial to BART eligibility, stating that the RHR does not require PSD review as a condition of being considered reconstructed.

ADEQ agreed with the documentation TEP supplied indicating that Unit I3 began operation prior to August 7, 1962, and is therefore not BART-eligible. ADEQ also concurred with TEP’s position that Unit I4 is not a BART-eligible source, stating that based on a plain reading of EPA’s guidance regarding the issue of reconstruction, it considered it appropriate to treat reconstructed sources as new sources at the time of reconstruction. As a result, ADEQ concurred that the reconstructed Unit I4 at Sundt was not “in existence” prior to August 7, 1977.

3. Arizona’s Identification of Sources exempt from BART

The second step of the BART process is to determine which BART-eligible facilities may be exempted from further review because they are not reasonably anticipated to cause or contribute to visibility impairment at any Class I areas.⁸³ ADEQ initially relied upon visibility modeling performed by the WRAP’s Regional Modeling Center (RMC) in order to assess the

⁸¹ Letter from Cosimo DeMasi, TEP, to Nancy Wrona, ADEQ (January 2, 2007), Attachment A (June 29, 1962).

⁸² 40 CFR part 51, appendix Y, section II.A.2. (“What is a ‘reconstructed source?’”).

⁸³ Alternatively, a state may make BART determinations for all of its BART-eligible sources, if those sources collectively cause or contribute to visibility impairment at one or more Class I areas. 40 CFR part 51, appendix Y, section III.

potential of BART-eligible sources to cause or contribute to Class I visibility impairment. ADEQ also provided each of the BART-eligible sources the opportunity to demonstrate, through the use of visibility modeling, that it does not cause or contribute to visibility impairment at surrounding Class I areas.

For states using modeling to determine the applicability of BART to single sources, the BART Guidelines note that a state must establish a contribution threshold to assess whether the impact of a single source is sufficient to cause or contribute to visibility impairment at a Class I area. The BART Guidelines state that, “[a] single source that is responsible for a 1.0 deciview change or more should be considered to ‘cause’ visibility impairment.”⁸⁴ The BART Guidelines also state that “the appropriate threshold for determining whether a source contributes to visibility impairment may reasonably differ across states,” but, “[a]s a general matter, any threshold that you use for determining whether a source ‘contributes’ to visibility impairment should not be higher than 0.5 deciviews.”⁸⁵ Further, in setting a contribution threshold, states should “consider the number of emissions sources affecting the Class I areas at issue and the magnitude of the individual sources’ impacts. For determining whether a source is subject to BART, ADEQ used a contribution threshold of 0.5 dv, based on a 3-year average of 98th percentile impacts.

The BART Guidelines provide that states may choose to use the CALPUFF modeling system or another appropriate model to predict the visibility impacts from a single source on a Class I area, and determine whether an individual source is anticipated to cause or contribute to impairment of visibility in Class I areas (i.e., visibility impacts below the 0.5 dv threshold). The Guidelines state that we believe CALPUFF is the best regulatory modeling application currently

⁸⁴ 40 CFR part 51, appendix Y, section III.A.1.

⁸⁵ Id.

available for predicting a single source's contribution to visibility impairment.⁸⁶ The WRAP Regional Modeling Center (RMC) developed a modeling protocol, entitled "CALMET/CALPUFF Protocol for BART Exemption Screening Analysis for Class I Areas in the Western United States." The WRAP RMC used this protocol to perform CALPUFF modeling for each of the western states in which it assessed the visibility impact of each of the sources initially identified as BART-eligible by the SSJF. Certain sources that were identified as causing or contributing to Class I visibility impairment (and therefore subject to BART) based on WRAP RMC results performed their own CALPUFF modeling in order to provide results indicating they were not subject to BART. This modeling was performed in accordance with the WRAP protocol and primarily consisted of different estimates of source emission rates during the baseline period.

Based on CALPUFF modeling performed in accordance with the WRAP protocol, ADEQ determined that the facilities in Table 10 had visibility impacts below the contribution threshold of 0.5 dv, and were therefore exempt from BART.

TABLE 10—SOURCES EXEMPT FROM BART (ADEQ)

Facility	Class I area with highest impact	Visibility Impact at 98th percentile (dv)				Notes
		2001	2002	2003	Average	
Nelson Lime Plant	Grand Canyon National Park	0.452	0.419	0.624	0.498	1
West Phoenix Power Plant	Superstition Wilderness	0.28	0.21	0.23	0.24	2
Rillito Cement Plant	Saguaro National Monument	0.37	0.48	0.34	0.40	3

¹ Based on September 21, 2007 modeling report provided by Chemical Lime

² Based on October 4, 2007 modeling report provided by Arizona Public Service

³ Based on May 25, 2007 WRAP RMC BART Modeling Results for Arizona

⁸⁶ 70 FR 39162.

Based upon CALPUFF modeling performed by WRAP, the remaining BART-eligible sources from Table 9 were determined to have visibility impacts greater than 0.5 dv.

4. Sources subject to BART in Arizona

Following the elimination of those sources that it determined were not BART-eligible or that it found to have visibility impacts below the 0.5 dv contribution threshold, ADEQ determined that the remaining BART-eligible sources were subject to BART for the one or more pollutants. These sources are summarized in Table 11.

TABLE 11—SOURCES SUBJECT TO BART (ADEQ)

Facility	BART Emission Units	Source Category	Pollutants Evaluated
Catalyst Paper	Power Boiler 2	Fossil-fuel boilers of more than 250 million British thermal units per hour heat input	NO _x , SO ₂
Hayden Smelter	Anode Furnaces 1 and 2, Converters 1, 2, and 4	Primary Copper Smelter	SO ₂
Miami Smelter	Converters 1-5, Anode Furnace, Shaft Furnace, Fugitives		SO ₂ , PM ₁₀

A summary of the BART-eligible sources ADEQ determined not subject to BART is in Table 12 below.

TABLE 12—SOURCES NOT SUBJECT TO BART (ADEQ)

Facility Name	Source Category	Reason
Sundt	Fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input	Unit 3 commenced operation prior to August 7, 1962 Unit 4 reconstructed after August 7, 1977
West Phoenix Power Plant		Exempt (visibility impact < 0.5 dv)
Rillito Cement Plant	Portland cement plant	Exempt (visibility impact < 0.5 dv)
Nelson Lime Plant	Lime Plant	Exempt (visibility impact < 0.5 dv)

B. EPA's Evaluation of ADEQ's Subject-to-BART Analysis

Hayden Smelter: We propose to approve ADEQ's determination that the Hayden smelter is a BART-eligible source and that a BART determination is required for SO₂, but is not required for NO_x. We propose to disapprove ADEQ's determination that a BART determination is not required for PM₁₀. In its SIP submittal, ADEQ determined that a BART determination for PM₁₀ was not required because the facility's potential to emit PM₁₀ is less than 250 tons per year.⁸⁷ This is inconsistent with the Regional Haze Rule. As defined in the Regional Haze Rule, a BART-eligible facility is one that, among other criteria, "has the potential to emit 250 tons per year or more of *any* air pollutant."⁸⁸ Once a facility has been determined to be BART-eligible, BART must then be determined for all visibility-impairing pollutants.⁸⁹ However, a state is not required to make a BART determination for SO₂ or for NO_x if a BART eligible source has the potential to emit less than 40 tons per year of such pollutant(s), or for PM₁₀ if a BART-eligible source has the potential to emit less than 15 tons per year of such pollutant.⁹⁰ For Hayden, the potential to emit PM₁₀ of the BART-eligible sources is 70 tpy.⁹¹ While we do not necessarily agree that this figure encompasses the full potential to emit of all BART-eligible units at Hayden, even ADEQ's estimate of 70 tpy exceeds the PM₁₀ exception threshold of 15 tpy. As a result, we propose to find that a BART determination for PM₁₀ is required. We intend to propose BART requirements for PM₁₀ at Hayden as part of our Phase 3 proposal. At minimum, we expect that BART would require compliance with the NESHAP MACT Subpart QQQ control requirements and emission limits.

⁸⁷ Page 23 of 115, Arizona RH SIP, Appendix D. See Docket Item B-01.

⁸⁸ 40 CFR 51.301.

⁸⁹ 40 CFR 51.308(e)(1)(ii).

⁹⁰ 40 CFR 51.308(e)(1)(ii)(C).

⁹¹ Per Table 6.5, Arizona RH SIP, Appendix D. See Docket Item B-01.

Miami Smelter: We propose to approve ADEQ's determination that the Miami smelter is a BART-eligible source, and that a BART determination is required for SO₂ and PM₁₀. We propose to disapprove ADEQ's determination that a BART determination is not required for NO_x. In its SIP submittal, ADEQ did not address NO_x emissions from the Miami smelter. As part of the visibility modeling performed for the Miami smelter, WRAP identified an annual NO_x emission rate of 158 tpy for the units constituting the BART-eligible source.⁹² This exceeds the NO_x exception threshold of 40 tpy. As a result, a BART determination for NO_x is required.

Sundt: We propose to approve ADEQ's determination that Sundt Unit I3 is not BART-eligible based on the startup date prior to August 7, 1962. We propose to disapprove ADEQ's determination that Sundt Unit I4 is not BART-eligible. Although we accept that the unit was reconstructed in 1987, we have determined that because the unit did not undergo PSD review as part of reconstruction that it is subject to BART.

Under the RHR, "BART-eligible source" means any stationary source of air pollutants in one the 26 BART categories, "including any reconstructed source, which was not in operation prior to August 7, 1962, and was in existence on August 7, 1977, and has the potential to emit 250 tons per year or more of any air pollutant. . . ."⁹³ As ADEQ noted in its RH SIP, the BART Guidelines state:

The "in operation" and "in existence" tests apply to reconstructed sources. If an emissions unit was reconstructed and began actual operation before August 7, 1962, it is not BART-eligible. Similarly, any emissions unit for which a reconstruction "commenced" after August 7, 1977, is not BART-eligible.⁹⁴

However, as explained in the preamble to the Guidelines, Congress intended "that the BART provision apply to sources which had been 'grandfathered' from the new source review permit

⁹² As described in "Summary of WRAP RMC BART Modeling for Arizona", Draft#5, May 25, 2007

⁹³ 40 CFR 51.301.

⁹⁴ 40 CFR part 51, appendix Y, § II.A.2, "What does 'in existence on August 7, 1977' mean?"

requirements in parts C and D of title I of the CAA.”⁹⁵ Consistent with this approach, footnote 9 of the preamble to the BART Guidelines notes that, “sources reconstructed after 1977, *which reconstruction had gone through NSR/PSD permitting*, are not BART-eligible.”⁹⁶ By implication, reconstructed sources that did not go through NSR/PSD permitting, *are* BART-eligible. Therefore, EPA concludes that, even accepting ADEQ’s determination that TEP Sundt Unit I4 was “reconstructed” after August 7, 1977, the Unit remains BART-eligible because it did not go through NSR/PSD permitting.⁹⁷

Threshold for Subject-to-BART: Arizona set a 0.5 dv as the threshold for determining whether a source “‘contributes’” to visibility impairment. The BART Guidelines state that “[as] a general matter, any threshold that you use for determining whether a source ‘contributes’ to visibility impairment should not be higher than 0.5 deciviews.”⁹⁸ In setting a threshold, states should consider the number of BART-eligible sources within the state and the magnitude of each source’s impacts.⁹⁹ Arizona did not provide a rationale for choosing 0.5 dv as the threshold for determining BART eligibility. We note that the WRAP’s SSJF identified fourteen sources that it initially considered BART eligible, and that ADEQ determined that seven of these fourteen do not contribute to visibility impairment based on visibility impacts below 0.5 dv. The source with a modeled impact closest to the 0.5 dv threshold is the Chemical Nelson Lime Plant facility with a modeled average 98th high impact of 0.498 dv at Grand Canyon NP.¹⁰⁰ As we discuss below, this is very close to the 0.5 dv threshold and, depending on how that threshold is interpreted, may exceed it. The source with the next highest impact is Rillito Cement Plant with a modeled

⁹⁵ 70 FR at 39111.

⁹⁶ 70 FR at 39111 (July 6, 2005) (emphasis added).

⁹⁷ See “TEP Sundt Unit I4 BART Eligibility Memo” (November 21, 2012) for a more detailed discussion of the BART eligibility of Unit I4.

⁹⁸ BART Guidelines, 40 CFR part 51, appendix Y, section III.A.1.

⁹⁹ *Id.*

¹⁰⁰ From visibility modeling performed by the source, see ARHP Appendix D, Table 6.9.

maximum impact of 0.40 dv at Saguaro NP.¹⁰¹ The source with the next highest impact is Salt River Project San Tan with a modeled maximum impact of 0.31 dv at Superstition WA. Given that reducing the threshold to 0.3 dv would not result in bringing into BART a significant number of sources impacting the same Class I area, the use of the 0.5 dv threshold may be appropriate. Therefore, EPA proposes to approve Arizona's decision to set 0.5 dv as the threshold for determining whether sources are subject-to-BART. However, given that the modeled average 98th high impact of one BART-eligible source, the Nelson Lime Plant, is within 0.002 dv of 0.5 dv, EPA is also seeking comment on whether it was unreasonable for ADEQ to set a threshold of 0.5 dv. If, after taking into consideration any comments received, we determine that the State's determination was unreasonable, then we may disapprove the State's decision to set a threshold of 0.5 dv.

West Phoenix Power Plant: As seen in Table 10, the visibility modeling performed by APS indicates that the 98th percentile impact from the West Phoenix Power Plant is below 0.5 dv at the most affected Class I area. Based on our review of the visibility modeling performed by APS, we propose to approve ADEQ's determination that the West Phoenix Power Plant is exempt from BART.

Rillito Cement Plant: As seen in Table 10, the visibility modeling performed by CalPortland indicates that the 98th percentile impact from the Kiln 4 at the Rillito Cement Plant is below 0.5 dv at the most affected Class I area. Based on our review of the visibility modeling, we propose to approve ADEQ's determination that the Rillito Cement Plant is exempt from BART.

Nelson Lime Plant: As seen in Table 10, the visibility modeling performed by Chemical Lime indicates that the average 98th percentile impact from the Nelson Lime Plant is below 0.5

¹⁰¹ See "Summary of WRAP RMC BART Modeling for Arizona" Draft No. 5, May 7, 2005. Initial draft released on April 4, 2005.

dv at the most affected Class I area. However the 98th percentile impact for a single year, 2003, exceeds 0.5 dv. ADEQ based its BART-exemption determination on the 3-year average of 98th percentile impact. When the 2003 value is averaged with the 2001 and 2002 values, the facility's visibility impact is below the exemption threshold of 0.5 dv. This interpretation of the 0.5 dv threshold differs from the interpretation used in a similar type of analysis, namely the Prevention of Significant Deterioration (PSD) Class I visibility analysis. For example, the CALPUFF model is often used for certain aspects of the PSD Class I visibility analysis, and the Federal Land Managers (FLMs), who have the affirmative responsibility to protect visibility at Class I areas, also use 0.5 dv as a threshold.¹⁰² Guidance issued by the FLMs indicates that they interpret this threshold to be exceeded if the 98th percentile values for change in light extinction are equal to or greater than 0.5 dv for *any* year.¹⁰³ Typically, the PSD-style method has been used to determine if a source exceeds the BART threshold. However, the BART Guidelines and the preamble to the Regional Haze Rule do not specify the interpretation of this threshold to the same level of detail as the FLM's guidance for the PSD program, nor do they specify a rounding convention under these circumstances. Nonetheless, in this instance, given that the 98th percentile impact for a single year clearly exceeds 0.5 dv and that the average of the three years is within 0.002 dv of 0.5 dv, EPA proposes to determine that it was not reasonable for the State to find the Nelson Lime Plant is not subject to BART. Therefore, we propose to disapprove the State's determination and find that Nelson Lime Plant is subject to BART. However, we are seeking comment on whether the State's decision was, in fact, reasonable and should be approved. If, based on comments received, we determine that the State's determination was reasonable, then we may approve the State's decision to find this source not subject-to-BART. In addition, EPA also seeks comments on whether there are cost effective pollution controls at Nelson Lime Plant.

¹⁰² Specifically, the FLM's threshold for concern is a 5% change in light extinction, which is equivalent to 0.5 dv.

¹⁰³ Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report—Revised (2010) (FLAG 2010), Page 23.

Cholla Unit 1: As discussed previously, we have addressed the BART determinations for Cholla Units 2, 3, and 4 in a separate action. For Unit 1, ADEQ determined it is not BART-eligible because it was in existence prior to August 7, 1962. The WRAP’s “Arizona BART Eligibility TSD” further explains that:

[Cholla] Unit 1 is listed as potentially date eligible as information shows that the emissions unit was in service only 2 months prior to the cut-off date. Recommend requesting additional supporting documentation for final determination.¹⁰⁴

ADEQ requested and later received this additional documentation from APS in August 2007 in the form of a document dated May 23, 1962 entitled “Operating Notes For May 1962.”¹⁰⁵ This document indicates that, “[o]n Tuesday, May 1, 1962, unit [#1 was] placed into commercial operation.”¹⁰⁶ After reviewing this documentation, ADEQ concurred that Unit 1 was not BART eligible.¹⁰⁷ We have requested and received from APS a copy of the “Operating Notes For May 1962” along with additional information concerning the operation of Cholla Unit 1.¹⁰⁸ We have placed these materials in the docket and, based on our review, we consider this documentation to be sufficient to confirm ADEQ’s determination that this unit is not BART-eligible. As a result, we propose to approve ADEQ’s determination that Cholla Unit 1 is not among the units that constitute the BART-eligible source at Cholla.

C. Arizona’s BART Control Analysis

The third step of the BART process is to perform the BART analysis and make a final determination. The BART Guidelines (70 FR 39164) describe a step-by-step procedure for performing the BART analysis. In performing this analysis, 40 CFR 51.308(e)(1)(ii)(A) requires

¹⁰⁴ “Supporting Documentation on Emissions Unit Bart Eligibility Analysis”, section 5.1.2.

¹⁰⁵ Arizona Regional Haze SIP at page 155.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ Email from Sue Kidd, APS, to Colleen McKaughan, EPA (October 10, 2012, 9:17 AM) and attachments.

that states consider the following factors: (1) The costs of compliance of each technically feasible control technology, (2) the energy and non-air quality environmental impacts of compliance of the control technologies, (3) any existing pollution control technology in use at the source, (4) the remaining useful life of the source, and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. These factors are frequently referred to as the “five-factor analysis” for the RHR BART determination.

The BART Guidelines recommend that a BART analysis include the following five steps. The Guidelines provide detailed instructions on how to perform each of these steps.¹⁰⁹

- Step 1—Identify All Available Retrofit Control Technologies,
- Step 2—Eliminate Technically Infeasible Options,
- Step 3—Evaluate Control Effectiveness of Remaining Control Technologies,
- Step 4—Evaluate Impacts and Document the Results,¹¹⁰ and
- Step 5—Evaluate Visibility Impacts.

ADEQ’s BART analyses mostly followed this approach, with the addition of a step to identify existing control technologies and a step concluding “selection of BART.” ADEQ identified a seven step process in its SIP submittal for determining BART:

- Step 1: Identify the Existing Control Technologies in Use at the Source
- Step 2: Identify All Available Retrofit Control Options
- Step 3: Eliminate All Technically Infeasible Control Options
- Step 4: Evaluate Control Effectiveness of Remaining Technologies
- Step 5: Evaluate the Energy and Non-Air Quality Environmental Impacts and Document Results¹¹¹

¹⁰⁹ 40 CFR part 51, appendix Y, § IV.D.

¹¹⁰ Step 4 includes evaluating the cost of compliance, energy impacts, non-air quality environmental impacts, and remaining useful life.

- Step 6: Evaluate Visibility Impacts
- Step 7: Select BART

In the cases of the Hayden and Miami smelters, ADEQ performed a streamlined BART analysis in which it examined controls required by New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants. In the case of PM₁₀, ADEQ examined control requirements from NESHAP Maximum Achievable Control Technology (MACT) Subpart QQQ (Primary Copper Smelters) in its streamlined analysis. In the case of SO₂, ADEQ examined control requirements from NSPS Subpart P (Primary Copper Smelters).

EPA Evaluation: This seven step BART determination process was also used to determine BART for the Apache, Cholla, and Coronado. As noticed in the separate action addressing BART for these facilities, while we found that this overall approach to the five-factor analysis is generally reasonable and consistent with the RHR and the BART Guidelines, we identified certain areas of this approach that were not consistent with RHR and the BART Guidelines.¹¹² This process was used for the BART determination for Catalyst Paper. However, as explained in further detail below, we are not proposing to take action on the facility's BART determinations at this time. As a result, we are not taking action to identify any areas of the BART determination process for Catalyst Paper that may not be consistent with RHR.

We propose to approve the use of a streamlined BART analysis for the copper smelters. The use of such a streamlined analysis is consistent with the RHR, which provides for streamlined analyses in certain instances when the affected source is subject to a MACT standard or other emission limitation required under the Clean Air Act. Our evaluation of the streamlined analyses and resulting determinations for the smelters are discussed in further detail below.

¹¹¹ We note that, while ADEQ refers to its Step 5 as an evaluation of energy and non-air quality environmental impacts, this step also includes consideration of the costs of compliance and the remaining useful life of the source, consistent with the BART Guidelines, 40 CFR Part 51, appendix Y, section IV.D.4.

¹¹² 77 FR 42841.

D. Arizona's BART Determinations

A summary of the ADEQ's BART determinations is contained in Table 13. Our evaluation of ADEQ's BART determinations is organized by source.

TABLE 13—SUMMARY OF ARIZONA'S BART DETERMINATIONS

Unit No.	Description	NO _x		PM ₁₀		SO ₂	
		Controls	Emission Limit lb/MMBtu	Controls	Emission Limit lb/MMBtu	Controls	Emission Limit lb/MMBtu
Catalyst Paper, Unit 2	1132 MMBtu/hr Coal-fired Boiler	No controls (existing)	0.7	None		Partial FGD (existing)	0.80
Hayden Smelter	3 converters and 2 anode smelters	None		None		Existing Controls - NSPS	
Miami Smelter	Electric furnace, 4 converters, remelt/mold pouring vessel	None		Existing Controls - NESHAP		Existing Controls - NSPS	

1. Catalyst Paper

On July 30, 2012, Catalyst Paper publicly announced the permanent closure of the mill in Snowflake, which includes the Unit 2 power boiler.¹¹³ At present, however, Catalyst Paper has not yet canceled its operating permits and therefore still maintains the ability to operate the mill. For this reason, we are not proposing to take action on ADEQ's BART determinations for Catalyst Paper. Instead, we intend to require that Catalyst Paper notify us prior to resuming operation of mill, at which point we will review ADEQ's BART determination and, if necessary, propose a FIP in accordance with regional haze requirements, including the BART provisions in 40 CFR 51.308(e).

2. Miami Smelter

¹¹³ <http://catalystpaper.com/media/news/community/catalyst-permanently-close-snowflake-recycle-paper-mill>.

ADEQ's Analysis: For PM₁₀, ADEQ performed a streamlined analysis in which it examined cost information and control requirements associated with NESHAP MACT Subpart QQQ (Primary Copper Smelters), which uses PM₁₀ as a surrogate for certain particulate HAP emissions. ADEQ notes that there are currently three operating copper smelters: the Kennecott smelter in Utah, the ASARCO smelter in Hayden, Arizona, and the Freeport McMoRan Inc. smelter in Miami, Arizona, with the other previously operating facilities having been shut down or permanently dismantled. ADEQ noted that the Kennecott smelter was constructed in the mid-1990s and uses a flash copper converting technology that allows copper to be produced on a continuous basis. ADEQ determined that the Kennecott smelter is not comparable to the Miami smelter, which operates as batch process rather than as a continuous process. A review of EPA's RACT/BACT/LAER Clearinghouse (RBLC) revealed that there are no emission limitations or air pollution control devices that have been approved for anode furnace operations. As a result, ADEQ determined that the most stringent control available to control PM₁₀ emissions from primary copper smelting are those required by NESHAP MACT Subpart QQQ.

For SO₂, ADEQ indicated it had performed a "streamlined" BART determination in which it examined control requirements and emission standards associated with NSPS Subpart P (Primary Copper Smelters). Again, ADEQ noted that only three copper smelters are currently operating: the Kennecott smelter in Utah, the in Hayden smelter and the Miami smelter, with the other facilities having been shut down or permanently dismantled. Again, ADEQ also noted that the Kennecott smelter was constructed in the mid 1990s and uses a flash copper converting technology that allows copper to be produced on a continuous basis. ADEQ determined that the Kennecott smelter is not comparable to the ASARCO Hayden smelter, which operates as a batch process rather than as a continuous process. ADEQ reviewed EPA's RBLC and concluded that there are no emission limitations or air pollution control devices that have been required as

BACT or LAER for anode furnace operations. Based only on this limited information, ADEQ's streamlined analysis found that the most stringent control available for SO₂ emissions from primary copper smelting operations is the existing double contact acid plant and that compliance with NSPS Subpart P constitutes BART for SO₂.

EPA's Evaluation: We propose to approve ADEQ's BART determination for PM₁₀ at the Miami smelter. As noted in the BART Guidelines, "unless there are new technologies subsequent to the MACT standards which would lead to cost effective increases in the level of control, you may rely on the MACT standards for purposes of BART."¹¹⁴ Although MACT Subpart QQQ was promulgated more than 10 years ago,¹¹⁵ we have not identified any new control technologies for the Miami smelter that would achieve more stringent emission control. In addition, we consider ADEQ's exclusion of controls in place at the Kennecott smelter from consideration to be appropriate for purposes of BART.¹¹⁶ The BART Guidelines state that "[w]e do not consider BART as a requirement to redesign the source when considering available control alternatives."¹¹⁷ Given the fundamental differences between operating a copper smelter (or any kind of manufacturing unit) as a batch process and a continuous process, we do not consider it appropriate to include this as a potential control option.

At this time, we are proposing to disapprove ADEQ's SO₂ BART determination or, in the alternative, approve the SO₂ BART determination if we receive adequate additional information during the comment period to support the appropriateness of the streamlined analysis in the SIP and that the control requirements and emissions standards from NSPS Subpart P are enforceable at all units as BART. We agree with ADEQ that the Miami smelter is comparable only to the

¹¹⁴ 40 CFR part 51, appendix Y, section IV.C.

¹¹⁵ 67 FR 40478 (June 12, 2002) (codified at 40 CFR part 63, subpart QQQ).

¹¹⁶ This conclusion does not impact whether or not the level of control for Kennecott should be considered in a best available control technology analysis under the Act's prevention of significant deterioration program.

¹¹⁷ 40 CFR part 51, appendix Y, section IV.D.5.

Hayden smelter. We also note that the Miami smelter is operating the sulfuric acid plant at the facility as a control device rather than as a stand-alone facility.

The BART Guidelines allow streamlined analyses that rely on emission standards established under other provisions of the CAA. For example, the BART Guidelines provide that generally states may rely on MACT standards for purposes of BART (70 FR 39164), but should consider other standards, such as the NSPS, only as starting points in streamlined analyses.¹¹⁸ When relying upon an NSPS in performing a streamlined analysis, the BART Guidelines indicate that additional analysis must be performed to determine if better control technology performance can be achieved since the promulgation of the NSPS. The BART Guidelines state “where you are relying on these standards to represent a BART level of control, you should provide the public with a discussion of whether any new technologies have subsequently become available.”

We are proposing to disapprove ADEQ’s BART determination, in part, because ADEQ did not provide information demonstrating that NSPS Subpart P meets the requirements for a streamlined BART determination. At the time NSPS Subpart P was promulgated, the control technology known to be capable of meeting the SO₂ standard was a sulfuric acid plant, which is the current control technology in place at the Miami smelter. ADEQ did not analyze whether the acid plant was operating at an optimal control level or if it could be retrofitted to operate at a lower emissions level. ADEQ identified the flash copper converting technology in place at the Kennecott smelter, but appropriately excluded it from consideration as a control option.¹¹⁹

¹¹⁸ BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.1, stating: “[w]e do not believe that technology determinations from the 1970s or early 1980s, including new source performance standards (NSPS), should be considered to represent best control for existing sources, as best control levels for recent plant retrofits are more stringent than these older levels.”

¹¹⁹ We consider ADEQ’s decision to not consider this technology to be appropriate. The BART Guidelines state that “[w]e do not consider BART as a requirement to redesign the source when considering available control alternatives.”¹¹⁹ Given the fundamental differences between operating a copper smelter (or any kind of manufacturing unit) as a batch process and a continuous process, we do not consider it appropriate to include this as

However, we find that it was not reasonable for ADEQ to limit its analysis to those facilities that are specifically subject to the NSPS Subpart P, rather than considering emission levels that are being achieved at other acid plants.

ADEQ's analysis did not examine whether acid plants in operation at a copper smelter (either at Miami or at Hayden) have demonstrated an ability to achieve, in practice, better levels of control since the promulgation of NSPS Subpart P. We note that multiple industries operate acid plants. An acid plant at a copper smelter, for example, uses the SO₂ in process offgas to produce sulfuric acid product, whereas an acid plant at a stand-alone sulfuric acid plant, for example, may use SO₂ from elemental sulfur and from spent sulfuric acid to produce sulfuric acid product. However, regardless of the source of the sulfur or the physical location of the plant, both facilities may be using the double contact acid plant process in which SO₂ in the feed stream is converted to SO₃ through double contact / double absorption converters. ADEQ has not provided any basis for limiting its examination of acid plant performance to only those acid plants operating at copper smelters.

In addition, ADEQ does not specify whether its BART determination would require that all of the BART-subject gas streams at the Miami smelter meet all of the relevant control requirements and emissions standards in Subpart P. NSPS Subpart P provides that no owner or operator of an affected facility "shall cause to be discharged into the atmosphere . . . any gases which contain sulfur dioxide in excess of 0.065 percent by volume."¹²⁰ This requirement extends to all of the emissions released by the subject facilities, which include smelting furnaces and copper converters, and not just to those emissions that are vented to and controlled by an acid plant. To provide an adequate BART determination, ADEQ should include a finding about the

a potential control option. As a result, we conclude that in this instance, ADEQ's reliance on NSPS Subpart P in its streamlined analysis was appropriate.

¹²⁰ 40 CFR 60.163(a).

amount of emissions being controlled by the acid plant and a clarification that the NSPS would apply to all emissions discharged from the BART-eligible units to the atmosphere.

Therefore, we are proposing to disapprove ADEQ's streamlined determination that SO₂ BART is the existing double contact acid plant with the NSPS Subpart P emission standard of 650 ppm. We are disapproving this determination because ADEQ's streamlined analysis does not demonstrate that the NSPS Subpart P level of control represents the best level of control. We are also proposing to disapprove the BART determination because it does not require that all of the BART-eligible units meet the control requirements and emissions standards in NSPS Subpart P. Finally, we are proposing to disapprove the lack of enforceability and compliance requirements for this BART determination.

In the alternative, we are proposing to approve ADEQ's determination that compliance with NSPS Subpart P constitutes BART for SO₂ provided ADEQ or other commenters submit additional information demonstrating that the sulfuric acid plant cannot achieve a lower level of SO₂ emissions. ADEQ's use of NSPS Subpart P in its streamlined analysis must be supported by additional information because, while the BART Guidelines provide that states generally may rely on MACT standards for purposes of BART, the same is not true for NSPS standards. NSPS standards may be outdated and may not represent current pollution control technology performance from acid plants operating at smelters and other industries.¹²¹ As a result, we propose to approve ADEQ's reliance on NSPS Subpart P in its streamlined analysis as a starting point provided we receive additional information showing the emission limit remains the most appropriate as BART, that the sulfuric acid plant cannot be operated cost-effectively at a lower level of SO₂ emissions, and that all other SO₂ emissions from the BART-eligible units meet

¹²¹ BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.1, n. 13, stating: "EPA no longer concludes that the NSPS level of controls automatically represents 'the best these sources can install.'"

BART. Commenters should not rely solely on the information regarding copper smelters in the RBLC but should include information from other acid gas plants.

Finally, Regional Haze SIPs must include requirements to ensure that BART emission limits are enforceable. In particular, the RHR requires inclusion of (1) a schedule for compliance with BART emission limitations for each source subject to BART; (2) a requirement for each BART source to maintain the relevant control equipment and (3) procedures to ensure control equipment is properly operated and maintained.¹²² General SIP requirements also mandate that the SIP include all regulatory requirements related to monitoring, recordkeeping and reporting for the BART emissions limitations.¹²³ ADEQ did not provide any explanation of how the Arizona SIP addresses these requirements for the Miami smelter.¹²⁴ Therefore, we can fully approve ADEQ's BART determinations for this source only if they are accompanied by adequate compliance requirements, including a clearly defined scope for the applicable BART requirements, compliance deadlines, operation and maintenance procedures, and monitoring, recordkeeping and reporting requirements for all of the BART-eligible units.¹²⁵

3. Hayden Smelter

ADEQ's Analysis: For SO₂, ADEQ identified some existing control technologies (i.e., primary and secondary hooding, double contact acid plant) currently installed and operating for

¹²² 40 CFR 51.308(e)(1)(iv), (v).

¹²³ See, e.g. CAA section 110(a)(2) (F) and 40 CFR 51.212(c).

¹²⁴ NSPS Subpart P includes some provisions concerning monitoring, recordkeeping and reporting but ADEQ did not indicate whether its BART determination would require compliance with these provisions. EPA is also aware that the Arizona SIP currently includes R18-2-175. Standards of Performance for Existing Primary Copper Smelters; Site Specific Requirements. This SIP-approved rule contains requirements for the Miami smelter, including enforcement and compliance provisions. ADEQ did not demonstrate that compliance with this rule would constitute BART for the Miami smelter.

¹²⁵ We also note that our proposed approval, in the alternative, for regional haze requirements purposes should not be taken as a statement regarding the acceptability of this level of SO₂ emissions at this facility or as an indication of the facility's compliance with other regulatory requirements. In addition, we wish to clarify that if we receive additional information adequate to finalize our proposed approval for BART for SO₂, the BART determination does not foreclose a more stringent BACT limitation should this source be required to obtain a PSD permit in the future for any reason.

the units that comprise the BART-subject source at the Hayden smelter. ADEQ indicated it had performed a “streamlined” BART determination in which it examined control requirements and emission standards associated with NSPS Subpart P (Primary Copper Smelters). ADEQ noted that only three primary copper smelting facilities are currently operating: the Kennecott smelter in Utah, the ASARCO smelter in Hayden, Arizona, and the Freeport McMoRan Inc. smelter in Miami, Arizona. In addition, ADEQ also noted that the Kennecott smelter was constructed in the mid 1990s and uses a flash copper converting technology that allows copper to be produced on a continuous basis. ADEQ determined the Kennecott smelter was not comparable to the Hayden smelter, which operates a batch process rather than a continuous process. ADEQ reviewed EPA’s RBLC and concluded that there are no emission limitations or air pollution control devices that have been required as BACT or LAER for anode furnace operations. Based only on this limited information, ADEQ’s streamlined analysis found that the most stringent control available for SO₂ emissions from primary copper smelting operations is the existing double contact acid plant and that compliance with NSPS Subpart P constitutes BART for SO₂.

EPA’s Evaluation: At this time, we are proposing to disapprove ADEQ’s BART determination or, in the alternative, to approve the BART determination, if we receive adequate additional information and analysis during the comment period to support the appropriateness of the streamlined analysis in the SIP. We are also proposing to disapprove the lack of compliance requirements, including a compliance deadline, operation and maintenance requirements, and monitoring, recordkeeping and reporting requirements sufficient to ensure that the BART requirements are enforceable at all units. We agree with ADEQ that the Hayden smelter is comparable only to the Miami smelter. We also note that the Hayden smelter is operating the sulfuric acid plant at the facility as a control device rather than a stand-alone facility.

The BART Guidelines allow streamlined analyses that rely on emission standards established under other provisions of the CAA. For example, the BART Guidelines provide that generally states may rely on MACT standards for purposes of BART (70 FR 39164), but should consider other standards, such as the NSPS, only as starting points in streamlined analyses.¹²⁶ When relying upon an NSPS in performing a streamlined analysis, the BART Guidelines indicate that additional analysis must be performed to determine if better control technology performance can be achieved since the promulgation of the NSPS. The BART Guidelines state “where you are relying on these standards to represent a BART level of control, you should provide the public with a discussion of whether any new technologies have subsequently become available.”

We are proposing to disapprove ADEQ’s BART determination, in part, because ADEQ did not provide information demonstrating that NSPS Subpart P meets the requirements for a streamlined BART determination. At the time NSPS Subpart P was promulgated, the control technology known to be capable of meeting the SO₂ NSPS was an acid plant, which is the current control technology in place at the Hayden smelter.¹²⁷ ADEQ did not analyze whether the acid plant was operating at an optimal control level or if it could be retrofitted to operate at a lower emissions level. ADEQ identified the flash copper converting technology in place at the Kennecott smelter, but appropriately excluded it from consideration as a control option.¹²⁸

However, we find that it was not reasonable for ADEQ to limit its analysis to those facilities that

¹²⁶ BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.1, stating: “[w]e do not believe that technology determinations from the 1970s or early 1980s, including new source performance standards (NSPS), should be considered to represent best control for existing sources, as best control levels for recent plant retrofits are more stringent than these older levels.”

¹²⁷ Specifically, ASARCO currently operates a double contact acid plant, which replaced the original single contact acid plant in 1983.

¹²⁸ We consider ADEQ’s decision to not consider this technology to be appropriate. The BART Guidelines state that “[w]e do not consider BART as a requirement to redesign the source when considering available control alternatives.” Given the fundamental differences between operating a copper smelter (or any kind of manufacturing unit) as a batch process and a continuous process, we do not consider it appropriate to include this as a potential control option. As a result, we conclude that in this instance, ADEQ’s reliance on NSPS Subpart P in its streamlined analysis was appropriate.

are specifically subject to the NSPS Subpart P, rather than considering emission levels that are being achieved at other acid plants. In addition, ADEQ's analysis did not examine whether acid plants in operation at a copper smelter (either at Hayden or at Miami) have demonstrated an ability to achieve, in practice, better levels of control since the promulgation of NSPS Subpart P. We note that multiple industries operate acid plants. An acid plant at a copper smelter, for example, uses the SO₂ in process offgas to produce sulfuric acid product, whereas an acid plant at a stand-alone sulfuric acid plant, for example, may use SO₂ from elemental sulfur and from spent sulfuric acid to produce sulfuric acid product. However, regardless of the source of the sulfur or the physical location of the plant, both facilities may be using the double contact acid plant process in which SO₂ in the feed stream is converted to SO₃ through double contact / double absorption converters. ADEQ has not provided any basis for limiting its examination of acid plant performance to only those acid plants operating at copper smelters.

In addition, ADEQ does not specify whether its BART determination would require that all of the BART-subject gas streams at the Hayden smelter meet all of the relevant control requirements and emissions standards in Subpart P. NSPS Subpart P provides that no owner or operator of an affected facility "shall cause to be discharged into the atmosphere . . . any gases which contain sulfur dioxide in excess of 0.065 percent by volume."¹²⁹ This requirement extends to all of the emissions released by the subject facilities and not just to those emissions that are vented to and controlled by an acid plant. To provide an adequate BART determination, ADEQ should include a finding about the amount of emissions being controlled by the acid plant and a clarification that the NSPS would apply to all emissions discharged from the BART-subject units to the atmosphere.

¹²⁹ 40 CFR 60.163(a).

Finally, Regional Haze SIPs must include requirements to ensure that BART emission limits are enforceable. In particular, the RHR requires inclusion of (1) a schedule for compliance with BART emission limitations for each source subject to BART; (2) a requirement for each BART source to maintain the relevant control equipment and (3) procedures to ensure control equipment is properly operated and maintained.¹³⁰ General SIP requirements also mandate that the SIP include all regulatory requirements related to monitoring, recordkeeping and reporting for the BART emissions limitations.¹³¹ ADEQ did not provide any explanation of how the Arizona SIP addresses these requirements for the Hayden smelter.¹³²

Therefore, we are proposing to disapprove ADEQ's streamlined determination that SO₂ BART is the existing double contact acid plant with the NSPS Subpart P emission standard of 650 ppm. We are disapproving this determination because ADEQ's streamlined analysis does not demonstrate that the NSPS Subpart P level of control represents the best level of control. We are also proposing to disapprove the BART determination because it does not require that all of the BART-eligible units meet the control requirements and emissions standards in NSPS Subpart P. Finally, we are proposing to disapprove the lack of enforceability and compliance requirements for this BART determination.

In the alternative, we are proposing to approve ADEQ's determination that compliance with NSPS Subpart P constitutes BART for SO₂, provided ADEQ or other commenters submit additional information demonstrating that the sulfuric acid plant cannot achieve a lower level of SO₂ emissions. ADEQ's use of NSPS Subpart P in its streamlined analysis must be supported by

¹³⁰ 40 CFR 51.308(e)(1)(iv), (v).

¹³¹ See, e.g. CAA section 110(a)(2) (F) and 40 CFR 51.212(c)

¹³² NSPS Subpart P includes some provisions concerning monitoring, recordkeeping and reporting but ADEQ did not indicate whether its BART determination would require compliance with these provisions. Additionally, ADEQ did not specify when any BART-eligible units not currently subject to NSPS Subpart P at the Hayden Smelter would be required to comply with its control requirements and emissions standards. EPA is also aware that the Arizona SIP currently includes R18-2-175. Standards of Performance for Existing Primary Copper Smelters; Site Specific Requirements. This SIP-approved rule contains requirements for the Miami smelter, including enforcement and compliance provisions. ADEQ did not demonstrate that compliance with this rule would constitute BART for the Hayden smelter.

additional information because, while the BART Guidelines provide that states generally may rely on MACT standards for purposes of BART, the same is not true for NSPS standards. NSPS standards may be outdated and may not represent current pollution control technology performance from acid plants operating at smelters and other industries.¹³³ As a result, we propose to approve ADEQ's reliance on NSPS Subpart P in its streamlined analysis as a starting point, provided we receive additional information showing the emission limit remains the most appropriate as BART, that the sulfuric acid plant cannot be operated cost-effectively at a lower level of SO₂ emissions, and that all other SO₂ emissions from the BART-eligible units meet BART. Commenters should not rely solely on the information regarding copper smelters in the RBLC but should include information from other acid gas plants.

Finally, we can fully approve ADEQ's BART determination for this source only if ADEQ also submits adequate compliance requirements, including a clearly defined scope for the applicable NSPS requirements, compliance deadlines, operation and maintenance procedures, and monitoring, recordkeeping and reporting requirements.¹³⁴

VIII. EPA's Evaluation of Arizona's Reasonable Progress Goals

A. Reasonable Progress Goals for the Best Days

The RHR requires that the RPGs ensure that there is no degradation on the best 20 percent of days.¹³⁵ The projected visibility levels for 2018 (shown in Table 5) raise some concerns about some of the Class I areas on the best days. The Class I areas represented by

¹³³ BART Guidelines, 40 CFR Part 51, Appendix Y, section IV.D.1, n. 13, stating: "EPA no longer concludes that the NSPS level of controls automatically represents 'the best these sources can install.'"

¹³⁴ We also note that our proposed approval, in the alternative, for regional haze requirements purposes should not be taken as a statement regarding the acceptability of this level of SO₂ emissions at this facility or as an indication of the facility's compliance with other regulatory requirements. In addition, we wish to clarify that if we receive additional information adequate to finalize our proposed approval for BART for SO₂, the BART determination does not foreclose a more stringent BACT limitation should this source be required to obtain a PSD permit in the future for any reason. Also, EPA is currently investigating the compliance status of this facility for other provisions of the CAA.

¹³⁵ 40 CFR 51.308(d)(1).

CHIR1 are projected to have an increase in visibility impairment of 0.03 dv. Saguaro NP – East Unit (SAGU1) is projected to have an increase of 0.10 dv.

The species-specific results of the 2018 projections provide more details about what the computer model shows to be the driver of the apparent increase in degradation at these two monitors. Table 14 provides this data.

TABLE 14—POLLUTANT-SPECIFIC CONTRIBUTION TO VISIBILITY IMPAIRMENT
ON THE BEST 20 PERCENT OF DAYS AT CHIR1 AND SAGU1¹³⁶

Pollutant	CHIR1		SAGU1	
	2000-2004 Baseline Conditions [Mm-1]	2018 Projected Conditions [Mm-1]	2000-2004 Baseline Conditions [Mm-1]	2018 Projected Conditions [Mm-1]
Sulfate	2.28	2.29	2.67	2.65
Nitrate	0.53	0.49	0.99	1.04
Organic Carbon	1.40	1.41	2.18	2.30
Elemental Carbon	0.67	0.57	1.27	0.88
Fine Soil	0.33	0.44	1.10	1.77
Coarse Material	1.22	No change ¹³⁷	1.83	No change
Sea Salt	0.01	No change	0.11	No change

At both CHIR1 and SAGU1, the increase in visibility impairment is caused primarily by the projected increase in impairment due to fine soil.

The monitoring data trends are not consistent with what the model is projecting. As shown in the Arizona IMPROVE trend analysis conducted by EPA¹³⁸, the monitors representing these areas showed the greatest improvement in visibility on the worst days when one compares monitored data in 2005-2010 to monitored data in the base period of 2000-2004. Significantly, there is no indication of increased impairment due to fine soil. Given these facts, and the

¹³⁶ Source: WRAP TSS, <http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx>, Best 20% of days, (plan02d_rev and prp18b).

¹³⁷ WRAP elected to hold the coarse mass and sea salt visibility impairment levels constant.

¹³⁸ See Table 5 of EPA Analysis of IMPROVE Monitoring Data From 2000-2010 in the docket.

relatively small amount of projected degradation, EPA is not overly concerned with the model results.

However, these projected visibility conditions on the 20 percent least impaired days do not account for benefits from EPA's BART determinations for Apache, Cholla and Coronado.¹³⁹ EPA expects the visibility on the least impaired days to be better than projected in the ARHP. Therefore, we propose disapproval of the RPGs for the 20 percent best days.

B. Reasonable Progress Goals for the Worst Days

Because Arizona's RPG estimates provide for a rate of improvement in visibility slower than the rate needed to show attainment of natural conditions by 2064, the RHR requires the state to demonstrate why its RPGs are reasonable and why a rate of progress leading to attainment of natural visibility conditions by 2064 is not reasonable.¹⁴⁰ The RHR specifies that RPGs, as well as the demonstration of the reasonableness of attainment beyond 2064, are to be established and evaluated taking into consideration four factors: costs of compliance; time necessary for compliance; energy and non-air quality environmental impacts of compliance; and remaining useful life of any potentially affected sources.¹⁴¹ As explained below, we propose to find that the State did not conduct an adequate analysis of these four factors. However, based on our supplementary analysis, we have come to the same conclusion as Arizona for some visibility impairing pollutants.

Focus on NO_x and SO₂: The State elected to focus its reasonable progress analysis on NO_x and SO₂. EPA concurs that these are the primary pollutants of concern. EPA also concurs that it is not appropriate to focus on primary organic aerosols or sources of VOC emissions at

¹³⁹ 77 FR 72512.

¹⁴⁰ The RHR also requires that the state provide to the public an assessment of the number of years it will take to reach natural visibility conditions. 40 CFR 51.308(d)(1)(ii). Arizona's estimates were included in its proposed SIP, which was provided to the public during the public review and comment process prior to ADEQ's adoption of the ARHP.

¹⁴¹ 40 CFR 51.308(d)(1)(i)(A); 51.308(d)(1)(ii).

this time. The WRAP emissions inventories demonstrate that the vast majority of these emissions are not controllable by the State. However, we disagree with the state's decision to exclude coarse mass and fine soil from their reasonable progress analysis. According to the State's own analysis, 57 percent of coarse mass emissions and 60 percent of fine soil emissions in 2002 were anthropogenic.¹⁴² We propose to disapprove the State's finding that it was not reasonable to require additional reductions of coarse mass or fine soil emissions, given that the State did not conduct an analysis for these pollutants, given that they contribute significantly to visibility impairment and are mostly from anthropogenic sources.

Mobile Sources: Emissions of SO₂, NO_x and VOC from on-road and off-road mobile sources are projected to drop significantly over the planning period (2002-2018). This is due to the impact of EPA requirements for cleaner vehicles and cleaner fuels.¹⁴³ Given these large reductions in emissions of these pollutants, we propose to approve the State's decision to not consider further control measures for SO₂, NO_x and VOC from mobile sources.

Fires: EPA proposes to agree with the State that emissions from fires should not be considered for further controls in the reasonable progress analysis. Efforts to reduce visibility impacts from fires are appropriately addressed by the smoke management plans, rather than in a reasonable progress analysis. EPA's analysis of the smoke management plans may be found in our evaluation of the State's Long Term Strategy in Section IX of this plan.

Area Sources: The State did not complete an adequate analysis of the potential for reasonable controls from area sources of NO_x and SO₂. While a number of source categories are listed in Chapter 11 of the ARHP, in the case of area sources, the state typically judged that it was too resource intensive to conduct the analysis. Given the lack of supporting analysis, the

¹⁴² Tables 8.5 and 8.6 of the ARHP.

¹⁴³ See ARHP page 173.

EPA proposes to disapprove the State's finding that there are no reasonable controls for NO_x or SO₂ on area sources.

Point Sources of SO₂: The vast majority of SO₂ emissions in Arizona are from point sources.¹⁴⁴ Therefore, this is the most important source category to consider for this pollutant. Over 99 of percent point source SO₂ emissions in Arizona are from 10 stationary sources. These sources are shown in Table 15. Some of these facilities are subject to BART (noted below). For the others, the State did not adequately consider the possibility of additional controls, so EPA conducted its own analysis.

TABLE 15—LARGEST SOURCES OF SO₂ IN ARIZONA¹⁴⁵

Source	SO ₂ Emissions in 2002 (tons per year)
Cholla Power Plant	20,770
Tucson Electric Power Springerville	19,862
Hayden Smelter	18,439
Coronado Generating Station	17,741
Miami Smelter	5,667
Apache Generating Station	5,167
Sundt Generating Station	3,119
Catalyst Paper Mill	1,519
Nelson Lime Plant	893
Douglas Lime Plant	755

The sources that ADEQ found subject to BART are described in Section VII of this notice. These are: Cholla (Units 2-4 only), Hayden smelter, Coronado, Miami smelter, Apache plant (Units 1-3 only), and the Catalyst Paper. EPA is proposing to find that the Sundt Generating Station Unit 4 is BART-eligible and the Nelson Lime Plant is also subject to

¹⁴⁴ Table 8.1 of the ARHP.

¹⁴⁵ Source: WRAP 2002 Arizona Point Source Emissions.

BART.¹⁴⁶ Therefore, EPA's reasonable progress analysis will focus on those remaining sources and units that we expect to emit significant quantities of SO₂: TEP Springerville, Sundt Units 1-3, and the Douglas Lime Plant.¹⁴⁷ For each source, we have evaluated each of the four statutory reasonable progress factors. In addition, where we found that there were additional potentially cost-effective controls available (using an initial screening level of \$5,000/ton), we conducted visibility modeling to assess the potential benefits of those controls.¹⁴⁸ These analyses are set forth in Tables 16A-16C below.

TABLE 16A—SO₂ REASONABLE PROGRESS ANALYSIS FOR TEP SPRINGERVILLE (UNITS 1 AND 2)

Costs of Compliance	These coal-fired units are already equipped with dry flue gas desulfurization (FGD) units. Therefore, they are already well controlled for SO ₂ . While it is possible to remove the dry FGD units and replace them with more effective wet FGD units, we estimate the incremental cost effectiveness of such an effort to be approximately \$17,000 to \$22,000/ton, which is a range of values that we do not consider cost effective. ¹⁴⁹
Time Necessary for Compliance	Any new control device would need to be installed by 2018. There would be sufficient time to comply.
Energy and Non-Air Quality Environmental Impacts of Compliance	A wet FGD would require more energy than the existing dry FGD. In addition, it would create a new water waste stream at the facility.
Remaining Useful Life	EPA assumes that the facility has a remaining useful life in excess of 20 years, allowing time to amortize the cost of any new controls
Conclusion	Given that the facility is already well controlled, EPA proposes to find that it is not reasonable to require more stringent SO ₂ controls on this facility at this time.

TABLE 16B—SO₂ REASONABLE PROGRESS ANALYSIS FOR SUNDT UNITS 1-3

¹⁴⁶ If EPA determines that the Nelson Lime Plant is not subject-to-BART, we will evaluate it for cost effective SO₂ controls for reasonable progress.

¹⁴⁷ We have not considered potential SO₂ controls at Cholla Unit 1 and Apache Unit 4, since these units have relatively low SO₂ emissions. Cholla Unit 1 currently uses lime injection to remove at least 80 percent of SO₂ as a result of New Source Review (Installation Permit #1247) and Apache Unit 4 may only be operated on pipeline quality natural gas, except during periods of gas curtailment not to exceed 600 hours per year (title V operating permit #35043). These permits can be accessed at http://www.azdeq.gov/enviro/air/permits/title_v/index.html.

¹⁴⁸ While visibility is not an explicitly listed factor to consider when determining whether additional controls are reasonable, the point of additional controls is to make reasonable progress toward natural visibility conditions. Therefore, the projected visibility benefit of the controls should be taken into account when determining if the controls are needed to make reasonable progress.

¹⁴⁹ See "Springerville FGD costs.xls" for a summary of preliminary cost estimates.

Costs of Compliance	These units are all fired with pipeline-quality natural gas. Their SO ₂ emissions are low and will remain low. 99.9 percent of the SO ₂ emissions from this facility are from Unit 4. ¹⁵⁰ Given the very low emission rates from these units – there are no cost-effective controls.
Time Necessary for Compliance	Any new control device would need to be installed by 2018. There would be sufficient time to comply.
Energy and Non-Air Quality Environmental Impacts of Compliance	Any post-combustion control, such as FGD would reduce the thermodynamic efficiency of the plant and increase fuel consumption.
Remaining Useful Life	EPA assumes that the facility has a remaining useful life in excess of 20 years, allowing time to amortize the cost of any new controls
Conclusion	Given that the low SO ₂ emissions from this non-BART units at this facility, EPA proposes to find that it is not reasonable to require more stringent SO ₂ controls on this facility at this time.

TABLE 16C—SO₂ REASONABLE PROGRESS ANALYSIS FOR DOUGLAS LIME PLANT

Costs of Compliance	Emissions inventory data indicates that production at the Douglas Lime Plant essentially stopped during the recession. SO ₂ emissions from the facility were 1,013 tpy in 2008, 42 tpy in 2009 and 0 tpy in 2010. Given the lack of emissions from the plant, EPA proposes to find that requiring controls would not be reasonable at this time.
Time Necessary for Compliance	Any controls would need to be installed by 2018. There is adequate time to install controls.
Energy and Non-Air Quality Environmental Impacts of Compliance	A wet FGD would increase energy consumption at the plant and would create a new waste water stream.
Remaining Useful Life	EPA assumes that the facility has a remaining useful life in excess of 20 years, allowing time to amortize the cost of any new controls.
Conclusion	Given the current lack of SO ₂ emissions, EPA proposes to find that it is not reasonable to require additional controls on this plant at this time. This plant should be considered for SO ₂ controls in future planning periods, as it may return to its previous levels of emissions.

¹⁵⁰ Source: WRAP 2002 Arizona Point Source Emissions.

Based on our supplemental analyses provided in the tables above, EPA proposes to approve ADEQ's conclusion that it is not reasonable to require additional SO₂ controls on non-BART sources at this time.

Point Sources of NO_x: The State's analysis of point sources to justify its RPGs did not provide sufficient supporting information to demonstrate the requirements of the RHR have been met. For example, the State's analysis of internal combustion engines and combustion turbines stated that "the Department has determined that it is not possible to complete a four-factor analysis without a major investment of resources . . . which is beyond the scope and effort required in this first Regional Haze SIP and therefore no further analysis was conducted." Similarly, with respect to cement kilns, the ARHP contends that the Rillito Cement Plant does not "appreciably diminish or impair visibility", but the plan does not provide technical documentation of that assertion. Given the slow rate of visibility improvement on the worst days at all Class I areas, a thorough analysis is required before concluding that nothing more can be done to improve visibility. Therefore, EPA proposes to disapprove the State's finding that it is not reasonable to require additional NO_x controls on non-BART point sources in Arizona.

C. Summary of EPA's Evaluation

EPA proposes to find that State did not demonstrate that its RPGs for the worst 20 percent of days in 2018 constitute reasonable progress toward the goal of natural visibility impairment by 2064. Specifically, EPA proposes to find that the State did not perform an adequate analysis for reasonable controls for fine soil and coarse mass. EPA furthermore proposes to find that the State did not perform an adequate analysis justifying its decision that it is not reasonable to require additional NO_x controls on non-BART point sources. Based on these

shortcomings, EPA proposes to disapprove the State's RPGs for the worst 20 percent days at all Class I Areas in the state.

EPA also proposes to disapprove the State's RPGs for the best 20 percent of days. We expect that visibility on these days will be better than the State projects, given additional controls required by the EPA.

IX. EPA's Evaluation of Arizona's Long-term Strategy

Under section 51.308(d)(3) of the RHR, Arizona must include a 10 to 15-year long-term strategy (LTS) as part of its regional haze plan (RHP). Arizona's LTS should compile all control measures the State will use through 2018 to meet the regional haze plan's RPGs, including BART required by the RHR. The LTS must include "enforceable emissions limitations, compliance schedules, and other measures needed to achieve the reasonable progress goals" for all Class I areas within and affected by emissions from Arizona.¹⁵¹ There are five general requirements for Arizona's LTS. The first general requirement concerns the interstate consultation process.¹⁵² The second concerns allotted emission reductions for out-of-state Class I areas.¹⁵³ A third and related requirement concerns documenting the technical basis for determining the apportionment of emission reduction obligations needed for reasonable progress in reducing visibility impairment in the State's affected Class I areas.¹⁵⁴ The fourth general requirement is to identify anthropogenic emissions sources causing visibility impairment considered by the State in developing its RHP.¹⁵⁵ Finally, the fifth general requirement is for the State to consider the following factors within the LTS:

¹⁵¹ See 40 CFR 51.308(d)(3).

¹⁵² See 40 CFR 51.308(d)(3)(i).

¹⁵³ See 40 CFR 51.308(d)(3)(ii).

¹⁵⁴ See 40 CFR 51.308(d)(3)(iii).

¹⁵⁵ See 40 CFR 51.308(d)(iv).

- (A) Emission reductions due to ongoing air pollution control programs, including measures to address reasonably attributable visibility impairment;
- (B) Measures to mitigate the impacts of construction activities;
- (C) Emissions limitations and schedules for compliance to achieve the reasonable progress goal;
- (D) Source retirement and replacement schedules;
- (E) Smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the State for these purposes;
- (F) Enforceability of emissions limitations and control measures; and
- (G) The anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the long-term strategy.¹⁵⁶

We have reviewed Arizona's LTS against these five general requirements.

A. Interstate Consultation on Emission Management Strategies

Under 40 CFR 51.308(d)(3)(i), Arizona is required to consult with another state if Arizona's emissions are reasonably anticipated to contribute to visibility impairment at that state's Class I area and must consult with other states, if emissions from those other states are reasonably anticipated to contribute to visibility impairment Class I areas in Arizona. To meet these regulatory requirements for interstate consultation and coordination, Arizona consulted with other states and tribes using the WRAP forums and processes. In particular, Arizona consulted with California, Colorado, New Mexico, and Utah using the primary vehicle of the WRAP Implementation Work Group (IWG). Arizona describes their WRAP participation in Chapters 2, 12.2, 13.2, and Appendix C of the RHP.

While Nevada was not a formal member of the WRAP and was not listed with WRAP member states in Arizona's discussion of interstate consultation, we note that Nevada did participate in WRAP workgroups and utilized WRAP technical analyses and source apportionment modeling in producing the Nevada RHP. Nevada used the WRAP's source

¹⁵⁶ See 40 CFR 51.308(d)(3)(v).

apportionment modeling to demonstrate Nevada's minimal contribution of the State's sulfate and nitrate emissions to light extinction at 25 Class I areas in Nevada's five neighboring states. Based on consultation through the WRAP, Nevada identified no major contributions that supported developing new interstate strategies, mitigation measures, or emissions reduction obligations.¹⁵⁷

In addition to participating with WRAP member states and Nevada in the WRAP forums and using WRAP analytical tools and procedures, Arizona provided a 30 day public comment period and a public hearing on December 2, 2010 to receive oral and written comments on its proposed RHP. No other states submitted oral or written comments or requested additional consultation during Arizona's public review process, including Nevada. See Appendix E of the RHP for the public hearing transcript and submitted written comments.

B. Measures to Obtain Allotted Emissions Reductions

Pursuant to 40 CFR 51.308(d)(3)(ii), Arizona is required to demonstrate, where its emissions cause or contribute to impairment in another state's Class I area, that it has included in its RHP all measures needed to obtain its share of the emission reductions for meeting the progress goal for that state's Class I area. Also, since Arizona participated in a regional planning process through the WRAP, Arizona is required to include in the LTS all measures needed to achieve its allotment of emission reductions agreed upon through the WRAP process.¹⁵⁸

Arizona's LTS for the first implementation period addresses the emissions reductions from federal, state, and local controls that take effect in the State from the end of the baseline period starting in 2002 through 2018.¹⁵⁹ Coordinating with the WRAP, ADEQ developed its LTS using the following components: WRAP emission inventories for a 2002 baseline and a 2018

¹⁵⁷ For our review and discussion of the Nevada RHP and approval of Nevada's consultation procedures, see our proposed rule at 76 FR 36450, (June 22, 2011) and our final rule at 77 FR 17334, (March 26, 2012).

¹⁵⁸ 40 CFR 51.308(d)(3)(ii).

¹⁵⁹ See the ARHP at page 201 for examples of federal and state programs providing emission reductions; e.g., federal low sulfur diesel fuel requirement and the Arizona vehicle emissions inspection program (AVEIP). For our approval of the AVEIP into the Arizona SIP, see 68 FR 2912; (January 22, 2003). Later in this review, we discuss several other state and local regulations that have been approved into the SIP.

projection (including emission reductions from WRAP member states); controls required or expected under federal and state regulations and BART; modeling to determine visibility improvement and apportion individual state contributions; state consultation; and application of the long-term strategy factors. Arizona accepted and incorporated the WRAP-developed visibility modeling within the ARHP. However, as explained above, we have disapproved the State's BART determinations for NO_x at the following units: Apache Units 2 and 3; Cholla Units 2, 3, and 4; Coronado Units 1 and 2.¹⁶⁰ In addition, as described in section VII of this document, we are proposing to disapprove certain elements of the state's BART determinations at other sources. Accordingly, the LTS, as approved into the applicable Arizona SIP, will not include all of the emissions reductions that were assumed in the WRAP-developed visibility modeling. Accordingly, Arizona's LTS does not include all measures needed to achieve its allotment of emission reductions agreed upon through the WRAP process. Therefore, we propose to determine that the LTS does not meet the requirements of 40 CFR 51.308(d)(3)(ii).

C. Technical Basis for Apportionment of Emission Reductions

Pursuant to 40 CFR 51.308(d)(3)(iii), Arizona is required to document the technical basis that it relied upon to determine its share of emission reduction obligations needed to achieve reasonable progress in each mandatory Class I Federal area it affects, including modeling, monitoring, and emissions information. The State may meet this requirement by relying on technical analyses developed by the WRAP and approved by all State participants. Arizona must also identify the baseline emissions inventory on which its strategies are based.

To meet these requirements, Arizona relied on several WRAP data and analytical systems and technical centers, such as the Technical Support System, the Regional Modeling Center, the

¹⁶⁰ See our proposed rule at 77 FR 42834, (July 20, 2012) and our final rule at 77 FR 72512, (December 5, 2012) which addressed these units.

Visibility Information Exchange Web System, the Causes of Haze Assessment Project, and the Emission Data Management System. Arizona provided a general overview of the WRAP policy and technical assistance in Chapter 12.2 and more specific and detailed documentation in Appendix C of the ARHP. Specifically, to determine the significant sources contributing to haze in Arizona's Class I areas, Arizona relied upon two source apportionment analysis techniques developed by the WRAP. The first technique was regional modeling using the Comprehensive Air Quality Model (CAMx) and the PM Source Apportionment Technology (PSAT) tool, used for the attribution of sulfate and nitrate sources. The second technique was the Weighted Emissions Potential (WEP) tool, used for attribution of sources of organic carbon, elemental carbon, PM_{2.5}, and PM₁₀. The WEP tool is based on emissions and residence time, not modeling. WEP is a screening tool that helps to identify source regions that have the potential to contribute to haze formation at specific Class I areas. Unlike PSAT, this method does not account for chemistry or deposition. More information on the WRAP modeling methodologies is available in Appendix C of the RHP.

As directed by the WRAP Modeling Forum, the Regional Modeling Center at the University of California at Riverside performed modeling for the WRAP member states, including Arizona. The Regional Modeling Center primarily used the CMAQ photochemical grid model to estimate 2018 visibility conditions in Arizona and all western Class I areas, based on application of the regional haze strategies in the various state plans, including assumed controls on BART sources. The Regional Modeling Center developed air quality modeling inputs, including annual meteorology and emissions inventories for the following: (1) a 2002 actual emissions base case; (2) a planning case to represent the 2000-2004 regional haze baseline period using averages for key emissions categories; and, (3) a 2018 base case of projected emissions determined using factors known at the end of 2005. All emission inventories were spatially and

temporally allocated using the SMOKE modeling system. These inventories were revised several times throughout the development process to arrive at the final versions used in CMAQ modeling. The photochemical modeling of regional haze for 2002 and 2018 for the WRAP-member states was conducted on the 36-kilometer resolution national regional planning organization domain that covered the continental United States, portions of Canada and Mexico, and portions of the Atlantic and Pacific Oceans along the east and west coasts. Again, a more detailed description of the CMAQ modeling performed for the WRAP can be found in Appendix C of the RHP.

To summarize, as described in Chapters 11 and 12 and Appendix C of the ARHP, Arizona used the technical tools and outputs provided by the WRAP, including the WRAP's 2002 baseline inventory, to produce the State's LTS. In EPA's evaluation of the WRAP's technical tools, we found these tools to be adequate for the analytical task to which they were applied and consistent with EPA guidance and suggested practice at the time of their use by the WRAP for its member states.¹⁶¹ Therefore, we propose to determine that the ARHP meets the requirements of 40 CFR 51.308(d)(iii).

D. Anthropogenic Sources of Visibility Impairment

Pursuant to 40 CFR 51.308(d)(3)(iv) Arizona is required to identify all anthropogenic sources of visibility impairment it considered in developing its LTS, including major and minor stationary sources, mobile sources, and area sources. As described earlier, Arizona used emissions inventories for 2002 and 2018 provided by the WRAP. The 2018 emissions inventory was developed by projecting 2002 emissions and applying reductions expected from federal and state regulations. The ARHP emission inventories were developed by WRAP and distributed to

¹⁶¹ See "Technical Support Document for Technical Products Prepared by the Western Regional Air Partnership (WRAP) in Support of Western Regional Haze Plans," February 28, 2011, at pages 57-58 for a summary of our review of the WRAP's analytical work.

Arizona via the Technical Support System. These emission inventories were calculated using approved EPA methods and we found them to be adequate for their use by the WRAP.¹⁶²

Across all visibility-related pollutants, there are 11 different emission inventory source categories identified in Arizona's RHP: point, anthropogenic fire, natural fire, area, WRAP region oil and gas, on-road mobile, off-road mobile, biogenic, road dust, fugitive dust, and windblown dust. Tables 8.1 through 8.8 of the ARHP show Arizona's 2002 baseline emissions, the 2018 projected emissions, and net changes of emissions for SO₂, NO_x, organic carbon, elemental carbon, PM_{2.5}, PM₁₀, NH₃, and VOC by their respective source category. In our discussion of the ARHP's emission inventories in section VI, we provide a summary of the relative contribution of anthropogenic sources for these pollutants; see Table 7. Furthermore, as part of its reasonable progress demonstration, Arizona identified the following specific source categories, totaling 48 facilities, as producing anthropogenic emissions worthy of consideration: internal combustion engines and turbines; external combustion boilers; asphalt plants; lime plants; primary copper smelters; and, nitric acid plants; see chapter 11.3 of the ARHP. The methods that the WRAP used to develop these emission inventories are described in more detail in Chapters 8, 9 and Appendix C of the RHP and are evaluated in the EPA's February 28, 2011 TSD.

In summary, Arizona utilized the 2002 and 2018 WRAP emission inventories developed according to EPA guidance and presented those inventories in the RHP. Also, Arizona identified all anthropogenic sources of visibility impairment it considered in developing the LTS. Therefore, we propose to determine that the ARHP meets the requirements of 40 CFR 51.308(d)(3)(iv). It should be noted that our proposed approval for this element is based on our finding that Arizona identified the sources of impairment that it actually considered in

¹⁶² We found the WRAP emission inventories to be complete, recent, and accurate, as well as, consistent with EPA Guidance; see EPA's February 28, 2011 TSD at page 58.

developing the LTS. This proposed approval does not imply that Arizona fully or appropriately considered all anthropogenic sources of visibility impairment in establishing its RPGs.

E. Mandatory Factors to consider for the Long-term Strategy

Pursuant to 40 CFR 51.308(d)(3)(v), Arizona must consider and address the following seven factors within its LTS: (1) emission reductions due to ongoing air pollution control programs, including measures to address RAVI; (2) measures to mitigate the impacts of construction activities; (3) emissions limitations and schedules for compliance to achieve the RPG; (4) source retirement and replacement schedules; (5) smoke management techniques for agricultural and forestry management purposes; (6) enforceability of emissions limitations and control measures; and, (7) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS.

1. Ongoing Air Pollution Control Programs

Arizona's LTS cites on-going air pollution control programs assumed within the RHP as part of the 2002 base year inventory and projected through 2018, such as Arizona's Vehicle Emissions Inspection Program and federal diesel fuel standards for low diesel fuels; see the RHP at pages 201 - 202. Mobile source emission reductions through 2018 are due to "on-the-books" federal controls applied to on-road mobile sources and non-road mobile sources and equipment; see chapter 11.4.4, page 173 for the list of assumed federal controls.

The LTS also lists 10 PM₁₀ nonattainment and maintenance plan areas in Arizona; see page 202 of the RHP and Table 12.55. Arizona asserts that the emission reduction programs in these areas provide significant emission reduction benefits. Several fugitive dust rules have been approved into the SIP and are cited as providing the emission reductions within these areas:

A.C.C. R18-2-602, A.C.C. R18-2-608, Maricopa County Rule 310.01, and the Agricultural Best

Practices Program.¹⁶³ The LTS does not describe ongoing state or local stationary source emission reduction programs or regulations in detail; however, the LTS mentions the New Source Review and the Prevention of Significant Deterioration stationary source programs as they relate to visibility impact assessment.¹⁶⁴ Regarding specific stationary source requirements, Arizona's BART reviews and determinations are discussed elsewhere in the ARHP, such as Chapter 10 and Appendix D.

The RHR also requires consideration of emission reductions due to ongoing air pollution control programs such as those derived from the Act's section 169A requirement for Arizona to reduce emissions from sources determined to cause reasonably attributable visibility impairment at Class I areas in the State (the RAVI program). Arizona has no ongoing air pollution programs providing emission reductions due to specific requirements of the RAVI program. In the late 1980s and early 1990s, EPA implemented a FIP to address the requirements of section 169A and EPA's RAVI rules.¹⁶⁵ Ultimately, EPA found that certain episodes of visibility impairment at the Grand Canyon National Park were reasonably attributable to the Navajo Generating Station (NGS) and required implementation of controls at NGS to reduce oxides of sulfur emissions.¹⁶⁶ Because NGS is located on the Navajo Indian Reservation, Arizona has no ongoing responsibility for regulating this source.

We propose to find that Arizona has met the requirement of 40 CFR 51.308(d)(3)(v)(A) to consider emission reductions due to ongoing air pollution control programs, including measures to address RAVI.

¹⁶³These rules were approved into the Arizona SIP as follows: R18-2-602 at 71 FR 28270, May 16, 2006; R18-2-608 at 47 FR 17485, April 23, 1982 (renumbered from R18-2-408 and R9-3-408); Maricopa County Rule 310.01, Fugitive Dust from Non-Traditional Sources of Fugitive Dust, at 75 FR 78167, December 15, 2010; and, the Agricultural Best Practices Program in R18-2-610 and R18-2-611 at 68 FR 51873, October 11, 2001.

¹⁶⁴ ARHP Chapter 12.7.1.1 at pages 198-199.

¹⁶⁵See our rulemaking actions at: 52 FR 45134, (November 24, 1987); 53 FR 35956, (September 15, 1988); and, 56 FR 50172, (October 3, 1991) (codified at 40 CFR 52.145). Also, see the summary discussion in the RHP at pages 199-200.

¹⁶⁶ 40 CFR 52.145(d).

2. Construction Activities

The LTS cites Maricopa County Rules 300 and 310 as rules for controlling fugitive dust emissions from construction activities. Maricopa County Rule 310, Fugitive Dust from Dust Generating Operations has been approved as a Best Available Control Measure-level rule for serious PM₁₀ nonattainment areas.¹⁶⁷ Also, we approved into the SIP Pinal County Rule 4-7, Construction Sites in Nonattainment Areas – Fugitive Dust.¹⁶⁸ Rule 300 has not been approved into the SIP.

We propose to find that Arizona has met the requirement of 40 CFR 51.308(d)(3)(v)(B) to consider measures to mitigate the impacts of construction activities.

3. Emissions Limitations and Schedules for Compliance

The LTS states that, “implementation of BART will contain emission limits and schedules of compliance for those sources either installing BART controls or taking federally enforceable permit limitations.”¹⁶⁹ However, as noted above, we have already disapproved the State’s BART determinations for NO_x at the following units: Apache Generating Station Units 2 and 3; Cholla Generating Station Units 2, 3, and 4; Coronado Units 1 and 2.¹⁷⁰ As described in section VII of this document, we are also proposing to disapprove certain elements of the state’s BART determinations at other sources. In addition, all of Arizona’s BART determinations lack the necessary compliance schedules and requirements for operation and maintenance of control equipment and monitoring, recordkeeping and reporting.

The LTS also states that Arizona “did not identify any additional measures that were appropriate for this first Regional Haze plan. As a result, no other emission limitations or

¹⁶⁷ For the most recent SIP incorporated version of Rule 310, see 75 FR 78167; (December 15, 2010).

¹⁶⁸ See 75 FR 17307; (April 6, 2010). Pinal County also adopted and in this rulemaking we approved several other rules related to controlling fugitive dust from unpaved roads and parking areas.

¹⁶⁹ ARHP section 12.7.3, page 203.

¹⁷⁰ See our proposed rule at 77 FR 42834, (July 20, 2012) and our final rule at 77 FR 72512, (December 5, 2012) which addressed these units.

schedules of compliance are included in this plan.”¹⁷¹ As explained in section VIII above, we are proposing to disapprove the State’s reasonable progress analysis and its conclusion that no additional emissions controls can be reasonably implemented. Based on these shortcomings in the State’s BART and Reasonable Progress analyses, we do not believe that Arizona has adequately considered the emission limits and schedules of compliance necessary to achieve reasonable progress. Therefore, we propose to determine that the ARHP does not meet the requirements of 40 CFR 51.308(d)(3)(v)(C).

4. Source Retirement and Replacement Schedules

Chapter 12.7.4 of the LTS refers to an evaluation of sources to provide a schedule of shutdowns, source retirements, and equipment replacement in an earlier section of the LTS; however, no such evaluation is found within Chapter 12.7.1.¹⁷² Appendix C of the ARHP does, however, discuss the 2002 and 2018 emissions inventories developed by the WRAP for Arizona; see pages 9 - 11 of Appendix C. The base case 2018 projected emissions inventories developed by the WRAP considered and accounted for source retirement and replacement for point and area sources.¹⁷³ These projections were updated in 2009 to include new information about projected changes in electric demand and the resultant impact on emissions from electric generating units.¹⁷⁴ In a similar manner, the WRAP used EPA’s MOBILE emissions model and this model projected on-road mobile source fleet turnover and replacement in Arizona over the 2002 to 2018 timeframe and these emissions inventory estimates were incorporated in later visibility modeling.

¹⁷¹ ARHP section 12.6.3, page 204.

¹⁷² See page 204 of the ARHP.

¹⁷³ See “WRAP Point and Area Source Emissions Projection for the 2018 Base Case Inventory”, Version 1, January 25, 2006 at Chapters 4 and 5. Chapter 4 discusses projected growth to 2018, including EGUs. Chapter 5 discusses point source retirement and replacement rates used in the analysis. See:

http://wrapair.org/forums/ssjf/documents/eiccts/docs/WRAP_2018_EI-Version_1-Report_Jan2006.pdf

¹⁷⁴ See ERG Technical Memorandum entitled “WRAP PRP18b Emissions Inventory – Revised Point and Area Source Projections”, October 16, 2009.

We propose to find that the ARHP meets the requirements of 40 CFR 51.308(d)(3)(v)(D) because it has considered adequately source retirement and replacement.

5. Smoke Management Programs

Arizona adopted rules consistent with a state certified smoke management program. EPA has reviewed and approved the following rules in the SIP: Rule R18-2-602, Unlawful Open Burning; Rule R18-2-1501, Definitions; Rule R18-2-1502, Applicability; Rule R18-2-1503, Annual Registration, Program Evaluation and Planning; Rule R18-2-1504, Prescribed Burn Plan; Rule R18-2-1505, Prescribed Burn Requests and Authorization; Rule R18-2-1506, Smoke Dispersion and Evaluation; Rule R18-2-1507, Prescribed Burn Accomplishment, Wildfire Reporting; Rule R18-2-1508, Wildland Fire Use: Plan, Authorization, Monitoring, Inter-agency Consultation, Status Reporting; Rule R18-2-1509, Emission Reduction Techniques; Rule R18-2-1510, Smoke Management Techniques; Rule R18-2-1511, Monitoring; Rule R18-2-1512, Burner Qualifications; and, Rule R18-2-1513, Public Notification Program, Regional Coordination.¹⁷⁵ Arizona believes these rules meet WRAP criteria for an enhanced smoke management program; see Table 12.56, page 205 of the RHP.

We propose to find that the ARHP meets the requirement of 40 CFR 51.308(d)(3)(v)(E) to consider smoke management techniques for agricultural and forestry management purposes.

6. Enforceability of Measures in the Long-Term Strategy

The RHR requires that the State consider the enforceability of emissions limitations and control measures included in its plan, as part of the LTS.¹⁷⁶ Arizona has adopted and submitted, and EPA has approved into the SIP many rules supporting the ARHP. Maricopa County Rule 310 and the smoke management program rules listed above are examples of the federally enforceable rules supporting the reasonable progress goals of the ARHP.

¹⁷⁵ See 71 FR 28270; (May 16, 2006).

¹⁷⁶ 40 CFR 51.308(d)(3)(v)(F).

As noted earlier, however, we have determined that Arizona's BART determinations lack provisions to ensure their enforceability. In our recent Phase 1 final rule, we found that the ARHP lacked the necessary compliance deadlines and requirements for equipment maintenance and operation, including monitoring, recordkeeping and reporting requirements for all pollutants at all of the eight BART units covered by that action.¹⁷⁷ In today's action, we are proposing to disapprove the lack of such "enforceability requirements" for ADEQ's BART determinations at the two BART-subject copper smelters. As explained above, we are also proposing to disapprove other elements of the State's BART and reasonable progress analyses. Therefore, we propose to determine that the ARHP does not meet the requirement of 40 CFR 51.308(d)(3)(v)(F).

7. Net Effect on Visibility Impairing Emissions Through 2018

Pursuant to 40 CFR 51.308(d)(v)(F), the State must consider as part of its LTS, the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the long-term strategy. Using WRAP-provided resources as described in the ARHP, Arizona estimated the net effect on visibility through 2018 due to changes in point, area, stationary and mobile source emissions. Those visibility changes within each Class I area are presented in detail in chapter 9.3 and are discussed in aggregate in chapter 11 of the ARHP. In sum, 2018 visibility is projected to improve in all Arizona Class I areas on the worst impaired days compared to baseline conditions and 2018 visibility is projected to improve in all but two Class I areas on the least impaired days compare to baseline conditions. We, therefore, propose to determine that the ARHP meets the requirement of 40 CFR 51.308(d)(3)(v)(G).

F. Summary of EPA's Evaluation of the LTS.

¹⁷⁷ 77 FR 72512, (December 5, 2012).

We propose to approve in part and disapprove in part the LTS portion of the ARHP.

Arizona has submitted an LTS addressing visibility impairment due to regional haze within Class I areas, both inside and outside of the state. We review our proposed approvals and disapprovals below.

Through participation in the WRAP, Arizona consulted with neighboring states and coordinated the ARHP, as well as developed and documented the technical basis for the ARHP. The State has estimated the 2002 base year and 2018 emissions inventories and the emission reductions resulting from the ARHP's control measures. The State identified all anthropogenic sources of visibility impairment it considered in developing the ARHP and LTS. The State has considered and addressed measures to mitigate the impacts of construction activities and to provide for smoke management from agricultural and forestry practices. Through the WRAP and its analyses, Arizona considered and estimated the net effect of the LTS on 2018 visibility levels. Consequently, we propose to find that the LTS meets the requirements of 40 CFR 51.308(d)(3)(i), (iii), (iv), (v)(A), (v)(B), (v)(D), (v)(E), and (v)(G) and we propose to approve the ARHP with respect to these requirements.

Because we have disapproved certain elements of the ARHP in our Phase 1 final rule and are proposing to disapprove other elements related to the implementation of enforceable BART controls and enforceable controls for reasonable progress, we are also proposing to determine that the LTS does not meet the requirements of 40 CFR 51.308(d)(3)(ii), (v)(C) and (v)(F). Therefore, we propose to find that the LTS does not meet the requirements of 40 CFR 51.308(d)(3)(ii), (v)(C), and (v)(F) and we propose to disapprove the ARHP with respect to these requirements.

X. Monitoring Strategy and Other Requirements

A. Monitoring Strategy

Arizona has elected to fulfill the requirements for a monitoring strategy through participation in the IMPROVE network, as permitted under the RHR.¹⁷⁸ Arizona relies on the IMPROVE monitoring program to collect and report data for reasonable progress tracking for all Class I Areas in the state.¹⁷⁹ Consequently, we propose to find that the state has met the requirements of 40 CFR 51.308(d)(4) for a monitoring strategy.

B. State and Federal Land Manager Coordination

Arizona participated fully in the WRAP, the primary forum for consultation among western states, tribal nations, federal agencies, stakeholder groups and the public. FLMs from the National Park Service (NPS), U.S. Fish and Wildlife Service, Bureau of Land Management and the U.S. Forest Service (USFS) were actively engaged in the WRAP's development of technical analyses and reports that formed the basis of Arizona's and other western state's regional haze plans. To facilitate consultation as required in 51.308(i)(2), ADEQ provided a list of its agency contacts to the FLMs followed by its draft RH SIP on September 20, 2010. Arizona ensured that the FLMs had an opportunity for consultation in person and at least 60 days prior to the public hearing that was held in Phoenix, Arizona, on December 2, 2010, which was also the deadline for public comments. NPS submitted comments dated November 29 and December 1, 2010. The USFS submitted comments dated November 29, 2010. ADEQ responded to the FLMs' comments through its Responsiveness Summary in Appendix E of the Arizona RH SIP. ADEQ outlined procedures for continuing consultation with the FLMs in its RH SIP¹⁸⁰ and committed to provide the FLMs an opportunity to review and comment on future SIP revisions, the 5-year progress reports, and the implementation of other programs that may contribute to visibility impairment in Arizona's Class I areas. EPA proposes to find that Arizona has met the requirements for coordination with the FLMs under 40 CFR 51.308(i)(1-4).

¹⁷⁸ 40 CFR 51.308(d)(4).

¹⁷⁹ ARHP, Chapter 4, "Regional Haze Monitoring Network", and Section 12.7, pages 200-201.

¹⁸⁰ ARHP, Chapter 13, Page 209.

C. Periodic SIP Revisions and 5-Year Progress Reports

In the ARHP, Arizona affirmed its commitment to submit a comprehensive SIP revision by July 31, 2018, and every ten years thereafter as required in 40 CFR 51.308(f). In these comprehensive revisions, the State must evaluate and reassess all of the elements required in 40 CFR 51.308(d), taking into account improvements in monitoring data collection and analysis techniques and control technologies. The State must also address current visibility conditions, actual progress toward natural conditions, effectiveness of the long-term strategy, and the reasonable progress goals. Arizona also confirmed its commitment to submit a report on reasonable progress every five years that will evaluate progress toward meeting the RPGs for its 12 Class I area as well as Class I areas outside the State that may be affected by emissions from within the State as required in 40 CFR 51.308(g). The first report is due five years after the State's submittal, which is February 28, 2016.

XI. EPA's Evaluation of Arizona's Provisions for Interstate Transport of Pollutants

Section 110(a)(2)(D)(i)(II) requires that each SIP contain "adequate provisions . . . prohibiting . . . any source or other types of emission activity within the State from emitting any air pollutant in amounts which will . . . interfere with measures required to be included in the applicable implementation plan for any other State. . . to protect visibility." EPA is proposing to find that Arizona's 2007 and 2009 Transport SIPs and Regional Haze Plan do not contain adequate provisions to meet the "good neighbor" provisions of section 110(a)(2)(D)(i)(II) with respect to visibility for the 1997 8-hour ozone, 1997 PM_{2.5}, and 2006 PM_{2.5} NAAQS, nor a demonstration that the existing Arizona SIP already includes measures sufficient to meet the interstate transport visibility requirement.

Our 2006 Guidance recommended that a state could meet the visibility prong of the transport requirements for section 110(a)(2)(D)(i)(II) with an approved regional haze SIP.¹⁸¹ EPA's reasoning was that the development of the regional haze SIPs was intended to occur in a collaborative environment among the states, and that through this process states would coordinate on emissions controls to protect visibility on an interstate basis. In fact, in developing their respective RPGs, WRAP states consulted with each other through the WRAP's work groups. As a result of this process, the common understanding was that each state would take action to achieve the emissions reductions relied upon by other states in their reasonable progress demonstrations under the RHR. Thus, we interpret the "good neighbor" provisions of section 110(a)(2)(D)(i) as requiring states to include in their SIPs either measures to prohibit emissions that would interfere with the RPGs to protect visibility in Class I areas in other states, or a demonstration that emissions from the state's sources and activities will not have the prohibited impacts under the existing SIP. This interpretation is consistent with the requirement of the RHR that a state participating in a regional planning process must include "all measures needed to achieve its apportionment of emission reduction obligations agreed upon through that process."¹⁸²

Since Arizona's 2007 and 2009 Transport SIPs did not specify which parts of the State's regional haze program should be considered as meeting the visibility requirement of section 110(a)(2)(D)(i)(II), we considered the 2011 Regional Haze SIP as a whole in assessing whether Arizona has met the visibility requirement of section 110(a)(2)(D)(i)(II). As discussed in sections VII ("EPA's Evaluation of Arizona's BART Analyses and Determinations") and VIII ("EPA's Evaluation of Arizona's Reasonable Progress Goals") of this proposed rule, EPA is proposing to

¹⁸¹ "Guidance for State Implementation Plan (SIP) Submissions to Meet Current Outstanding Obligations Under Section 110(a)(2)(D)(i) for the [1997] 8-Hour Ozone and PM_{2.5} National Ambient Air Quality Standards" (August 15, 2006); see also "Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2006 24-hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards (NAAQS)" ("2009 Guidance").

¹⁸² 40 CFR 51.308(d)(3)(ii).

disapprove several aspects of Arizona's BART and Reasonable Progress Analyses. Also, as previously noted, EPA has already disapproved Arizona's determinations for NO_x emission limits at most of the units at Apache, Cholla, and Coronado.¹⁸³ The emissions from each of these sources affect visibility in at least one Class I area in another state.¹⁸⁴ The proposed partial disapprovals in today's notice, if finalized, and the final partial disapprovals for Apache, Cholla, and Coronado mean that these portions of Arizona's Regional Haze Plan will not become part of the Arizona SIP.

Accordingly, Arizona's long-term strategy (i.e., the compilation of all control measures that Arizona will implement to meet the relevant RPGs) lacks enforceable emissions limitations for certain air pollutants as necessary to achieve RPGs for all Class I areas affected by emissions from Arizona, as required by 40 CFR 51.308(d)(3). As noted above, we interpret the "good neighbor" provisions of section 110(a)(2)(D)(i) as requiring states to include in their SIPs either measures to prohibit emissions that would interfere with the RPGs required to be set to protect visibility in Class I areas in other states or a demonstration that emissions from the state's sources and activities will not have the prohibited impacts under the existing SIP. Because we partially disapproved Arizona's BART provisions for three sources (Apache, Cholla, and Coronado) and are proposing in this notice to partially disapprove Arizona's BART and reasonable progress analyses, we propose to conclude that the Arizona SIP does not include sufficient measures to prohibit emissions that would interfere with the RPGs for Class I areas in other states. Furthermore, Arizona has not made a demonstration that emissions from the state's sources and activities will not have the prohibited impacts under the existing SIP.

¹⁸³ 77 FR 42834 (July 20, 2012)(proposal), 77 FR 72512, (December 5, 2012).(final).

¹⁸⁴ For example, Cholla Power Plant has been determined by Arizona and EPA to affect visibility in Class I areas in Colorado, New Mexico, and Utah. *See* 77 FR 42834 at 42861. Also, Arizona's RHP discusses Arizona's contributions to visibility impairment in Colorado, New Mexico, and Utah (see pages 179-181).

Thus, we propose to find that Arizona's 2007 and 2009 Transport SIPs and Regional Haze Plan do not contain adequate provisions to prohibit emissions that interfere with SIP measures required of other states to protect visibility.¹⁸⁵ Accordingly, we propose to disapprove these SIP revisions for the visibility requirement of section 110(a)(2)(D)(i)(II) for the 1997 8-hour ozone, 1997 PM_{2.5}, and 2006 PM_{2.5} NAAQS.

XII. EPA's Proposed Action

A. Regional Haze

EPA is proposing to approve in part and disapprove in part the remaining portions of Arizona's RH SIP. Specifically, we are proposing to approve the technical basis for the State's plan, most of the analyses regarding which sources are eligible and which sources are subject to BART, the BART determination for PM₁₀ at the Miami smelter and parts of the long-term strategy. We are proposing alternatively to approve or disapprove the State's BART determination for SO₂ at the Hayden and Miami smelters, and whether the Nelson Lime Plant is subject to BART.

We are proposing to disapprove the State's BART determinations for PM₁₀ at the Hayden smelter and for NO_x at the Miami smelter as well as the State's finding that Unit 4 at Sundt is not BART-eligible. In addition, we are proposing to disapprove the visibility goals for the most and least impaired days, which set the targets for evaluating progress. Moreover, we propose to disapprove that part of the long-term strategy that requires enforceable emission limits and compliance schedules that were not included in the SIP, and were not adequately considered in setting the visibility goals. Our consent decree deadline for taking final action on Arizona's RH SIP is July 15, 2013.

¹⁸⁵ As noted above, we previously acted on these submissions with respect to the other three prongs. See 72 FR 41629 (July 31, 2007) and 77 FR 66398 (November 5, 2012). Therefore, today's action, if finalized, will complete our action on these submissions.

EPA is legally obligated to issue a FIP for the disapproved parts of Arizona's RH SIP pursuant to CAA section 110(c)(1) and the court's orders under the consent decree. Accordingly, we included a FIP in our recently published final rule regarding three of Arizona's BART sources. For today's proposed action on the SIP, we have a separate court-ordered schedule for a FIP to address any disapproved elements of the SIP. The consent decree deadlines for this FIP are to propose by March 8, 2013, and take final action by October 15, 2013. Our obligation to promulgate a FIP for those parts of the State's plan that we are unable to approve is based on the State's failure to submit a required SIP, and our subsequent failure to issue a FIP within two years of our finding of failure to submit. EPA takes very seriously a decision to disapprove all or part of a state plan. In this instance, we believe that Arizona's SIP meets some, but not all of the RHR requirements under the CAA. As a result, EPA considers that proposing to disapprove portions of the State's plan is the only path that is consistent with the Act at this time.

B. Interstate Transport of Visibility

As discussed in section XI ("EPA's Evaluation of Arizona's Provisions for Interstate Transport of Pollutants") of this proposed rule, EPA proposes to find that Arizona's 2007 and 2009 Transport SIPs and Regional Haze Plan do not contain adequate provisions to prohibit emissions that interfere with SIP measures required of other states to protect visibility. Therefore, we propose to disapprove Arizona's 2007 and 2009 Transport SIPs and Regional Haze Plan for the visibility requirement of section 110(a)(2)(D)(i)(II) for the 1997 8-hour ozone, 1997 PM_{2.5}, and 2006 PM_{2.5} NAAQS.

C. Sanctions and FIP Duties

Under section 179(a) of the CAA, final disapproval of a submittal that addresses a requirement of part D, title I of the CAA (CAA sections 171-193) or is required in response to a finding of substantial inadequacy as described in CAA section 110(k)(5) (SIP Call) starts a

sanctions clock. Arizona's 2007 and 2009 Transport SIPs and Regional Haze Plan were not submitted to meet either of these requirements. Therefore, any action we take to finalize the described partial disapproval will not trigger mandatory sanctions under CAA section 179. In addition, CAA section 110(c)(1) provides that EPA must promulgate a FIP within two years after finding that a State has failed to make a required submission or disapproving a State implementation plan submission in whole or in part, unless EPA approves a SIP revision correcting the deficiencies within that two-year period. Thus, our proposed disapproval of Arizona's 2009 Transport SIP with respect to the visibility requirement of section 110(a)(2)(D)(i)(II) for the 2006 PM_{2.5} NAAQS, if finalized, will establish a deadline two years from the effective date of such final rule for EPA to promulgate a FIP for this requirement, unless a SIP revision is submitted by ADEQ and approved by EPA by that deadline.¹⁸⁶ We anticipate that any FIP designed to remedy the proposed disapprovals described in this notice, if finalized, along with the already-finalized partial BART FIP for Apache, Cholla, and Coronado, would also remedy the disapproval, if finalized, for the interstate transport visibility requirement of CAA section 110(a)(2)(D)(i)(II) for the 1997 8-hour ozone, 1997 PM_{2.5}, and 2006 PM_{2.5} NAAQS.

XIII. Statutory and Executive Order Reviews

A. Executive Order 12866, Regulatory Planning and Review

This action is not a "significant regulatory action" under the terms of Executive Order (EO) 12866 (58 FR 51735, October 4, 1993) and is therefore not subject to review under the EO.

¹⁸⁶ As described above, EPA is already subject to a FIP duty for Regional Haze in Arizona. In addition, due to a previous finding of failure to submit, 70 FR 21147, we are already subject to a FIP duty for the 2007 Transport SIP.

B. Paperwork Reduction Act

This action does not impose an information collection burden under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq, because this proposed partial approval and partial disapproval of SIP revisions under CAA section 110 will not in-and-of itself create any new information collection burdens but simply proposes to approve certain State requirements, and to disapprove certain other State requirements, for inclusion into the SIP. Burden is defined at 5 CFR 1320.3(b).

C. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions. For purposes of assessing the impacts of today's rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. After considering the economic impacts of today's proposed rule on small entities, I certify that this action will not have a significant impact on a substantial number of small entities. This rule does not impose any requirements or create impacts on small entities. This proposed rule does not impose any requirements or create impacts on small entities. This proposed partial SIP approval and partial SIP disapproval under CAA section 110 will not in-and-of itself create any

new requirements but simply proposes to approve certain State requirements, and to disapprove certain other State requirements, for inclusion into the SIP. Accordingly, it affords no opportunity for EPA to fashion for small entities less burdensome compliance or reporting requirements or timetables or exemptions from all or part of the rule. Therefore, this action will not have a significant economic impact on a substantial number of small entities. We continue to be interested in the potential impacts of this proposed rule on small entities and welcome comments on issues related to such impacts.

D. Unfunded Mandates Reform Act

This action contains no Federal mandates under the provisions of Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531– 1538 for State, local, or tribal governments or the private sector.” This action proposes to approve certain preexisting requirements, and to disapprove certain other pre-existing requirements, under State or local law, and imposes no new requirements. Accordingly, no additional costs to State, local, or tribal governments, or to the private sector, result from this proposed action.

E. Executive Order 13132, Federalism

Executive Order 13132, entitled “Federalism” (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” is defined in the Executive Order to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” This action does not have federalism implications. It will not

have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132, because it merely proposes to approve certain State requirements, and to disapprove certain other State requirements, for inclusion into the SIP and does not alter the relationship or the distribution of power and responsibilities established in the Clean Air Act. Thus, Executive Order 13132 does not apply to this action.

F. Executive Order 13175, Coordination with Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000), because the SIP on which EPA is proposing action would not apply in Indian country located in the state, and EPA notes that it will not impose substantial direct costs on tribal governments or preempt tribal law. Thus, Executive Order 13175 does not apply to this action. However, this action creates the basis for future action which could impact a tribally-owned source. EPA will engage in consultation with the affected tribe to ensure that any concerns are considered during that process. EPA specifically solicits additional comment on this proposed rule from tribal officials.

G. Executive Order 13045, Protection of Children From Environmental Health Risks and Safety Risks

EPA interprets EO 13045 (62 FR 19885, April 23, 1997) as applying only to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the EO has the potential to influence the regulation. This action is not subject to EO 13045 because it is not an economically significant regulatory action based on health or safety risks subject to Executive Order 13045 (62 FR 19885, April 23, 1997). This proposed

partial approval and partial disapproval under section 110 of the Clean Air Act will not in-and-of itself create any new regulations but simply disapproves certain State requirements for inclusion into the SIP.

H. Executive Order 13211, Actions That Significantly Affect Energy Supply, Distribution, or Use

This proposed rule is not subject to Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 (“NTTAA”), Public Law 104–113, 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies. NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards. The EPA believes that this action is not subject to requirements of Section 12(d) of NTTAA because application of those requirements would be inconsistent with the Clean Air Act.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Population

Executive Order (EO) 12898 (59 FR 7629 (Feb. 16, 1994)) establishes federal executive policy on environmental justice. Its main provision directs federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States. EPA lacks the discretionary authority to address environmental justice in this rulemaking.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Incorporation by reference, Intergovernmental relations, Nitrogen dioxide, Particulate matter, Reporting and recordkeeping requirements, Sulfur oxides, Visibility, Volatile organic compounds.

AUTHORITY: 42 U.S.C. 7401 et seq.

Dated: December 7, 2012.

Jared Blumenfeld,
Regional Administrator,
Region 9.

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